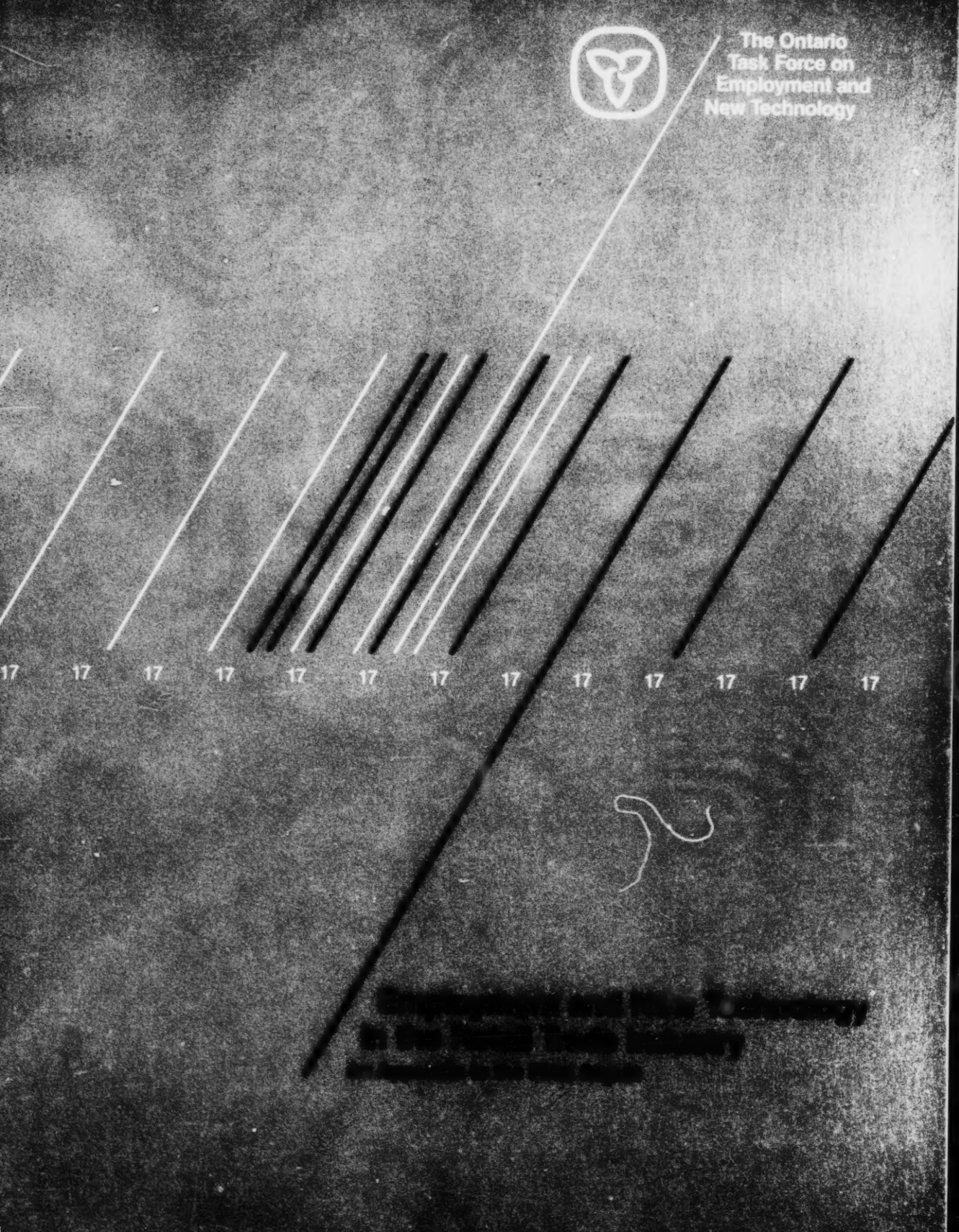

The Ontario
Task Force on
Employment and
New Technology

86-03664/

ONTARIO TASK FORCE ON EMPLOYMENT AND NEW TECHNOLOGY

Co-Chairmen of the Task Force

WILLIAM B. BOGGS
Chairman and President, The de Havilland Aircraft of Canada Ltd.

ROBERT WHITE
Director for Canada, United Auto Workers Union

Members of the Task Force

RALPH BARFORD
Chairman, Valleydene Corporation Ltd.

JALYNN BENNETT
Investment Vice-President, The Manufacturers Life Insurance Co.

LUCIE NICHOLSON
President, Ontario Division, Canadian Union of Public Employees

FRED POMEROY
President, Communications Workers of Canada

THOMAS ARMSTRONG
Deputy Minister, Ontario Ministry of Labour

BENSON WILSON
Chairman, Ontario Manpower Commission

Staff

Richard Brown, Research Director

Stanley But

Hildegard Martens

APPENDIX 17

EMPLOYMENT AND NEW TECHNOLOGY

IN THE RETAIL TRADE INDUSTRY

This Appendix contains a report prepared for the Ontario Task Force on Employment and New Technology. The topic was approved in advance by the Task Force. At the conclusion of the study, the Task Force had the opportunity to review the report, but its release does not necessarily imply endorsement of the results by the Task Force or its individual members.

© Her Majesty the Queen in Right of Ontario, 1985

ISBN: 0-7729-0487-1

Additional copies of this and other Ontario Government publications are available from:

The Ontario Government Bookstore, 880 Bay Street, Toronto for personal shopping. Out-of-town customers write to Publications Services Section, 5th Floor, 880 Bay Street, Toronto, M7A 1N8. Telephone (416) 965-6015. Toll free long distance 1-800-268-7540, in area code 807 dial 0-Zenith 67200. Mastercard and Visa accepted. Cheques and money orders payable to the Treasurer of Ontario. Prepayment required.

FOREWORD

The Ontario Task Force on Employment and New Technology, a joint labour-management group, was established in May, 1984, "to consider and report on the manpower and employment implications of new technologies as the same may be introduced and applied in Ontario during the next decade and the extent and nature thereof."

To inform its discussions, the Task Force established a research agenda designed to gather information on employment and technological change from a wide variety of sources. The research agenda contained projects which gathered information of a historical nature, and projects with a future orientation which were designed to gather information describing likely occupational and employment implications associated with technological change in the 1985-1995 period.

The Appendices to the Final Report of the Ontario Task Force on Employment and New Technology contain reports of these research projects. A complete list of these Appendices may be found at the end of this document.

Among the Appendices are reports of a series of studies to assess the extent and nature of the employment implications of new technology in selected industries in Ontario. Appendix 3 describes the process by which the industries were selected, and contains the studies' terms of reference which called for particular attention to selected new technologies and occupational groups. Appendices 4-18 contain reports of these industry studies, which were conducted by Currie, Coopers & Lybrand, management consultants.

This particular appendix contains a report of the study on the Retail Trade Industry.

Dr. Richard L. E. Brown, P.Eng.
Research Director

ACKNOWLEDGEMENTS

The Ontario Task Force on Employment and New Technology has been generously supported by financial contributions from:

The Board of Industrial Leadership and Development (BILD) of the Government of Ontario.

The Ontario Manpower Commission.

The Ontario Ministry of Labour.

The Task Force would like to thank the staff of Currie, Coopers & Lybrand, particularly Maureen Farrow and Victor Rocine, whose assistance in the conduct of this study is greatly appreciated.

Special thanks are due to all industry experts and survey respondents who provided information for this study.

APPENDIX 17

EMPLOYMENT AND NEW TECHNOLOGY IN THE RETAIL TRADE INDUSTRY

A Report Prepared by Currie, Coopers & Lybrand
for the Consideration of the Ontario Task Force
on Employment and New Technology

July 1985

Submitted By: Maureen Farrow
Stephanie Currie
Currie, Coopers
& Lybrand
Management
Consultants

TABLE OF CONTENTS

		Page
FOREWORD AND ACKNOWLEDGEMENTS		i - iii
PART I	**INTRODUCTION AND METHODOLOGY**	1
1.0	**INTRODUCTION**	1
1.1	STRUCTURE OF THIS REPORT	1
1.2	STUDY APPROACH	2
1.2.1	HISTORICAL ANALYSIS	3
1.2.2	EXPERT INTERVIEWS	3
	SECTION I - RETAIL FOOD STORES	
PART II	**HISTORICAL TRENDS 1971-1984**	4
2.0	**INTRODUCTION**	4
2.1	THE STRUCTURE OF THE INDUSTRY	4
2.2	THE MARKET ENVIRONMENT	5
2.3	INDUSTRY TRENDS	8
2.3.1	AGGREGATE OUTPUT	9
2.3.2	COMPETITIVE POSITION	10
2.3.3	CAPITAL INVESTMENT	11
2.3.4	EMPLOYMENT	13
PART III	**FUTURE TRENDS: THE INTERVIEW RESULTS**	16
3.0	**ADOPTION OF NEW TECHNOLOGY**	16
3.1	NEW TECHNOLOGIES AND RATES OF ADOPTION	16
3.2	FORCES DRIVING THE NEED TO ADOPT NEW TECHNOLOGY	18
3.3	FACTORS THAT COULD SLOW THE RATE OF TECHNOLOGY ADOPTION	19
4.0	**INDUSTRY OUTLOOK TO 1995**	21
4.1	OUTPUT TO 1995	21
4.2	INVESTMENT PATTERNS	21
4.2.1	JUSTIFYING FINANCIAL INVESTMENT IN NEW TECHNOLOGY	21
4.2.2	SOURCE OF NEW CAPITAL SPENDING	22
4.3	EMPLOYMENT TO 1995	22
4.3.1	FACTORS AFFECTING EMPLOYMENT	22
4.3.2	EMPLOYMENT OUTLOOK	23
4.3.3	TRENDS IN PART-TIME WORK	23
4.4	CHANGES IN OCCUPATIONAL STRUCTURE	23

TABLE OF CONTENTS

		Page
5.0	**EMPLOYMENT EFFECTS OF NEW TECHNOLOGY**	25
5.1	EFFECTS ON OCCUPATIONS	25
5.2	LIKELY STEPS TO DEAL WITH SKILLS OVERSUPPLY	25
5.3	LIKELY STEPS TO DEAL WITH SKILLS SHORTAGES	26
5.4	TECHNOLOGY IMPACT ON SKILL LEVELS AND JOB CONTENT	26
5.5	TRAINING COSTS AND NEW TECHNOLOGY	27
6.0	**LABOUR RELATIONS ENVIRONMENT**	28
6.1	INDUSTRIAL RELATIONS ENVIRONMENT: HISTORICAL	28
6.2	TRENDS IN UNIONIZATION	28
6.3	TECHNOLOGY CHANGE CLAUSES	29
6.4	MANAGEMENT'S PERCEPTION OF THEIR UNION'S POSITION ON NEW TECHNOLOGY	29
6.5	NATURE OF WORKER INVOLVEMENT IN THE PROCESS OF TECHNOLOGICAL CHANGE	30
6.6	VIEWS ON INVOLVING WORKERS IN DECISIONS ON ADOPTING NEW TECHNOLOGY	30
7.0	**PLANNING FOR TECHNOLOGICAL CHANGE**	31

SECTION II - GENERAL MERCHANDISE STORES

PART II	**HISTORICAL TRENDS 1971-1984**	32
2.0	**INTRODUCTION**	32
2.1	THE STRUCTURE OF THE INDUSTRY	32
2.2	THE MARKET ENVIRONMENT	33
2.3	INDUSTRY TRENDS	37
	2.3.1 AGGREGATE OUTPUT	38
	2.3.2 CAPITAL INVESTMENT	41
	2.3.3 EMPLOYMENT	42
PART III	**FUTURE TRENDS: THE INTERVIEW RESULTS**	46
3.0	**ADOPTION OF NEW TECHNOLOGY**	46
3.1	NEW TECHNOLOGIES AND RATES OF ADOPTION	46
3.2	FORCES DRIVING THE NEED TO ADOPT NEW TECHNOLOGY	47
3.3	FACTORS THAT COULD SLOW THE RATE OF TECHNOLOGY ADOPTION	48

TABLE OF CONTENTS

		Page
4.0	**INDUSTRY OUTLOOK TO 1995**	51
4.1	OUTPUT TO 1995	51
4.2	INVESTMENT PATTERNS	51
	4.2.1 JUSTIF ING FINANCIAL INVESTMENT IN NEW TECHNOLOGY	52
	4.2.2 SOURCE OF NEW CAPITAL SPENDING	52
4.3	EMPLOYMENT TO 1995	52
	4.3.1 FACTORS AFFECTING EMPLOYMENT	52
	4.3.2 EMPLOYMENT OUTLOOK	53
	4.3.3 TRENDS IN PART-TIME WORK	53
5.0	**EMPLOYMENT EFFECTS OF NEW TECHNOLOGY**	54
5.1	EFFECTS ON OCCUPATIONS	54
5.2	LIKELY STEPS TO DEAL WITH SKILLS OVERSUPPLY	54
5.3	LIKELY STEPS TO DEAL WITH SKILL SHORTAGES	55
5.4	TECHNOLOGY IMPACT ON SKILL LEVELS AND JOB CONTENT	55
5.5	TRAINING COSTS AND NEW TECHNOLOGY	55
6.0	**LABOUR RELATIONS ENVIRONMENT**	56
6.1	INDUSTRIAL RELATIONS ENVIRONMENT: HISTORICAL	56
6.2	TRENDS IN UNIONIZATION	56
6.3	TECHNOLOGY CHANGE CLAUSES	56
6.4	MANAGEMENT'S PERCEPTION OF THEIR UNION'S POSITION ON NEW TECHNOLOGY	57
7.0	**PLANNING FOR TECHNOLOGICAL CHANGE**	58

PART IV APPENDICES 59

APPENDIX A QUESTIONNAIRE

APPENDIX B HISTORICAL TABLES

LIST OF EXHIBITS

		Page
	SECTION I - RETAIL FOOD STORES	
EXHIBIT 1	THE CONSUMER SQUEEZE, ONTARIO	8
EXHIBIT 2	RETAIL SALES, FOOD STORES, CONSTANT 1971 DOLLARS	9
EXHIBIT 3	COMBINATION FOOD STORES, CAPITAL EXPENDITURE, CONSTRUCTION, CONSTANT 1971 DOLLARS	11
EXHIBIT 4	COMBINATION FOOD STORES, CAPITAL EXPENDITURE, MACHINERY AND EQUIPMENT, CONSTANT 1971 DOLLARS	12
EXHIBIT 5	FOOD STORES, TOTAL EMPLOYMENT	13
EXHIBIT 6	EMPLOYMENT DISTRIBUTION, FOOD STORES	14
EXHIBIT 7	SELECTED TECHNOLOGIES BY TIME PERIOD IN THE RETAIL FOOD STORE INDUSTRY	18
	SECTION II - GENERAL MERCHANDISE STORES	
EXHIBIT 8	THE CONSUMER SQUEEZE, ONTARIO	37
EXHIBIT 9	GENERAL MERCHANDISE, RETAIL SALES, CONSTANT 1971 DOLLARS	38
EXHIBIT 10	DEPARTMENT STORES, RETAIL SALES, CONSTANT 1971 DOLLARS	41
EXHIBIT 11	DEPARTMENT STORES, CAPITAL EXPENDITURE, CONSTRUCTION, CONSTANT 1971 DOLLARS	41
EXHIBIT 12	DEPARTMENT STORES, CAPITAL EXPENDITURE, MACHINERY AND EQUIPMENT, CONSTANT 1971 DOLLARS	42
EXHIBIT 13	GENERAL MERCHANDISE, TOTAL EMPLOYMENT	43
EXHIBIT 14	EMPLOYMENT DISTRIBUTION, GENERAL MERCHANDISE STORES	44
EXHIBIT 15	SELECTED TECHNOLOGIES BY TIME PERIOD IN THE GENERAL MERCHANDISE STORE INDUSTRY	47

LIST OF TABLES

APPENDIX B

		PAGE
	SECTION I - RETAIL FOOD STORES	
TABLE B1	INDUSTRY INDICATORS: FOOD STORES IN ONTARIO (CURRENT DOLLARS)	1
TABLE B2	INDUSTRY INDICATORS: FOOD STORES IN ONTARIO, AVERAGE ANNUAL RATES OF CHANGE (PERCENT)	2
TABLE B3	INDUSTRY INDICATORS: FOOD STORES IN ONTARIO (CONSTANT 1971 DOLLARS)	3
TABLE B4	INDUSTRY INDICATORS: FOOD STORES IN ONTARIO, AVERAGE ANNUAL RATES OF CHANGE (PERCENT)	4
TABLE B5	OCCUPATIONAL INDICATORS: FOOD STORES IN ONTARIO, RANKING BY RELATIVE STRENGTH	5
TABLE B6	OCCUPATIONAL INDICATORS: FOOD STORES IN ONTARIO, RANKING BY INCREASE IN FEMALE REPRESENTATION	6
TABLE B7	INDUSTRIAL RELATIONS: FOOD STORES IN ONTARIO	7
	SECTION II - GENERAL MERCHANDISE STORES	
TABLE B8	GENERAL MERCHANDISE STORES IN ONTARIO (CURRENT DOLLARS)	8
TABLE B9	INDUSTRY INDICATORS: GENERAL MERCHANDISE STORES IN ONTARIO, AVERAGE ANNUAL RATES OF CHANGE (PERCENT)	9
TABLE B10	INDUSTRY INDICATORS: GENERAL MERCHANDISE STORES IN ONTARIO (CONSTANT 1971 DOLLARS)	10
TABLE B11	INDUSTRY INDICATORS: GENERAL MERCHANDISE STORES IN ONTARIO, AVERAGE ANNUAL RATES OF CHANGE (PERCENT)	11
TABLE B12	OCCUPATIONAL INDICATORS: GENERAL MERCHANDISE STORES, RANKING BY RELATIVE STRENGTH	12
TABLE B13	OCCUPATIONAL INDICATORS: GENERAL MERCHANDISE STORES, RANKING BY INCREASE IN FEMALE REPRESENTATION	13
TABLE B14	INDUSTRIAL RELATIONS: GENERAL MERCHANDISE STORES	14

EMPLOYMENT AND NEW TECHNOLOGY IN THE RETAIL TRADE INDUSTRY

PART I - INTRODUCTION AND METHODOLOGY

1.0 INTRODUCTION

This report is one of a series of industry reports which summarize the findings of a major research project[1] undertaken for the Ontario Task Force on Employment and New Technology. Each report includes a historical analysis and an outlook to 1995 for the industry, and a review of the anticipated impacts of new technology on employment.

1.1 Structure of This Report

This report presents the study findings for Ontario's Retail Food Stores, SIC[2] 631 and General Merchandise Stores, SIC 642. The report includes four parts.

- The first part (Chapter 1.0) is the Introduction which includes a description of the approach and methodology.

- The second part (Chapter 2.0) is a Historical Analysis for the industry from 1971 to 1984 which provides background and a perspective on the industry's historical development.

- The third part (Chapters 3.0 to 7.0) discusses the results of the expert consultation undertaken in the industry. These chapters cover:

  - a review of recent and anticipated technology adoptions,

  - the outlook for the industry to 1995, including expected output and employment levels,

---

1 Manpower and Employment Implications of New Technologies in Selected Service Industries in Ontario to 1995. The terms of reference of this assignment can be found in Appendix 3 to the Task Force's final report.

2 1970, Standard Industrial Classification (SIC), Statistics Canada.

- effects on employment of new technology such as anticipated occupational shifts and changes in required skills,

- a review of the labour relations environment as it relates to new technology, and

- observations on planning efforts for technological change in the industry.

- Part four of the report includes various appendices that support the text of individual chapters.

1.2 Study Approach

The study approach selected incorporates the following research techniques:

- Analysis of published statistics and reports on the industry, augmented by the working knowledge of industry specialists within Currie, Coopers & Lybrand, and

- In-depth interviews with management and labour experts in the industry, conducted at various stages in the project, using structured interview guides.

Although an attempt was made to conduct an industry survey of the Retail Food and General Merchandising Industries, these industries were in the midst of significant structural and organizational changes during the survey period (Fall of 1984 to Spring of 1985). Firms invited to participate in the survey declined almost universally due to general priorities and lack of certainty about their futures. As a result, the discussion of the Retail Food and General Merchandising industries is based on a series of expert interviews with key industry sources, not on a sample survey of the two industries. Appendix A contains a copy of the questionnaire which formed the basis of the expert interviews.

The following describes the purpose and use of the historical analysis and expert interview process:

1.2.1 Historical Analysis

The purpose of the historical analysis was to provide an informed perspective on the industry from which to view future trends. The historical analysis covers the economic environment, competitive factors, output and employment patterns, productivity, technology adoption and the industrial relations environment. In order to permit cross industry analysis, consistent indicators and data sources were used.

1.2.2 Expert Interviews

A series of in-depth interviews were conducted with management, industry associations and union representatives in the Retail Food and General Merchandising industries. These experts have a broad understanding of the industry in terms of both its historical development and its future outlook. Their input assisted in the preparation of the historical analysis and provided the key inputs into the discussion of employment and technological change in the retail trade sector.

In both the Retail Food and the General Merchandising sectors, six (6) interviews were conducted with management and/or industry associations. As well, two (2) interviews were conducted with union representatives in the Retail Food industry.

The following chapters of this report are divided into two sections as follows:

Section I - Retail Food Stores
Section II - General Merchandise Stores

SECTION I - RETAIL FOOD STORES

PART II - HISTORICAL TRENDS 1971-1984

2.0 INTRODUCTION

This section of the report provides an historical analysis of Retail Food Store Industry trends for the period 1971 to 1984. The tables for this section of the report are presented in Appendix B.

2.1 The Structure of the Industry

Food stores are the largest segment of Canada's retail trade industry followed by motor vehicle dealers and general merchandise stores. In 1984, food store retailers accounted for $30 billion or 26 percent of all retail trade in Canada and $11 billion or 26 percent of all retail trade in Ontario.

The food stores SIC 631 includes combination stores (which sell groceries and meat), grocery, confectionery and sundries stores, and all other food stores. Combination food stores are by far the largest group of food retailers, accounting for 74 percent of total food sales in 1984.

RETAIL FOOD STORES SALES IN ONTARIO, 1984

	$ MILLIONS	PERCENT OF TOTAL
Combination Stores (Groceries & Meat)	8,344	74.2
Grocery, Confectionery & Sundries Stores	2,073	18.4
All Other Food Stores	821	7.3
TOTAL FOOD STORES	$11,238	100.0

Note: Percentage details do not add due to rounding.
Source: Statistics Canada, Retail Trade, March 1985, Catalogue No. 63-005.

Combination food stores include stores with groceries and 20 percent or more fresh meat. This group of stores primarily represents large chain and independent supermarket retailers. Chains include any organization operating four or more retail outlets in the same kind of business, under the same legal ownership. Independents represent all other retailers.

Grocery, confectionery and sundries stores are defined as grocery, confectionery and sundries stores or as grocery stores with 20 percent or less fresh meat. This group of stores includes a variety of chain and independent convenience and specialty stores, as well as supermarkets.

All other food stores include bakery product stores, dairy product stores, egg and poultry stores, fruit and vegetable stores, meat markets, etc. Most of these stores are otherwise known as specialty stores because they carry a particular product line. These specialty stores can be part of a chain or they can operate as independents.

2.2 The Market Environment

There are three driving forces that determine developments in food store retailing: the growth in personal incomes, the growth and age structure of the population, and competition for market share. All three have been undergoing fundamental changes over the past decade with the result that the structure of the industry is in the process of transformation. This transformation is more pronounced in Ontario than the rest of Canada because of the intensity of competition for market share.

The transformation has been triggered by the combination of secular (long term) and cyclical (short term) trends. The secular changes which began in the 1970's and will continue into the 1990's, are:

- Slower Population Growth

From 1971 to 1976, Ontario's population grew at an average annual rate of 1.4 percent per year. In the period 1976-1981, annual growth slowed to 0.9 percent, reflecting the decline in birth rates that started in the 1960's, slower immigration from abroad, and a temporary but significant out-migration to Alberta. From 1981 to 1984, population growth averaged 1.2 percent annually. The underlying trend towards slower population growth led directly to slower increases in the amount of food consumed.

- An Aging Population Profile

As people grow older, they consume fewer calories. In 1971, 46 percent of Ontario's population was over 30, by 1981, the ratio had increased to 51 percent and it will go on rising over the next decade, so the food industry has yet to see the full impact of the aging profile of Ontario's population.

- Inflation

The 1970's were characterized by a number of price shocks affecting the necessities of life - food, energy and shelter. These price shocks forced families to reallocate their budgets, cutting back on the non-necessities, altering eating habits (using cheaper cuts of meat), and reducing food wastage. This was a confusing period for the consumer. The financial squeeze forced many women to go out to work to help the family maintain its living standards. It also led many families to increase their savings, if they could, in order to protect themselves against economic insecurity. Food retailers found it necessary to provide new lines of low priced products - generic foods and drugs, for example - and to create new types of stores offering no-frill services - superwarehouse stores, box stores, etc.

- Changing Lifestyles

There were several changes in lifestyles that affected food retailing.

- The increase in the number of two income families led to a rapidly growing market for convenience foods and pre-cooked dinners. But it also led to a higher tendency to eat out, which diverted food sales from the retail level.

- The rapid income gains of the early 1970's and the high level of affluence in a significant number of two income families created an "upmarket" segment with more sophisticated taste. This increased demand for specialty foods and a greater variety of foods.

- The increased interest in health and exercise led to changing patterns of food consumption - wholewheat bread, and fruit instead of cakes and cookies. In effect, consumers became concerned about the quality of calories.

These lifestyle changes have affected food retailing in many ways, the most important being the segmentation of the market into specialized products and retailing outlets. Consumers shop more carefully for value and for price on many standard items, but a significant number of consumers also are prepared to spend freely for high quality items such as expensive cuts of meat, imported cheeses, etc.

The net effect of these secular changes has been to trigger a revolution in food retailing. The retailers with foresight and adaptability grew at the expense of slower moving, less innovative competitors, though in general, food retailers have been more responsive to the new market environment than other types of retailers.

In addition, the industry had to cope with a more volatile cycle in consumer spending patterns created by the sharp deceleration in the growth in personal disposable income in the late 1970's. The average Canadian suddenly entered a period when wage increases no longer exceeded the average increase in consumer prices. The squeeze on consumer budgets was most severe during 1978 to 1982, but it has continued through to 1984.

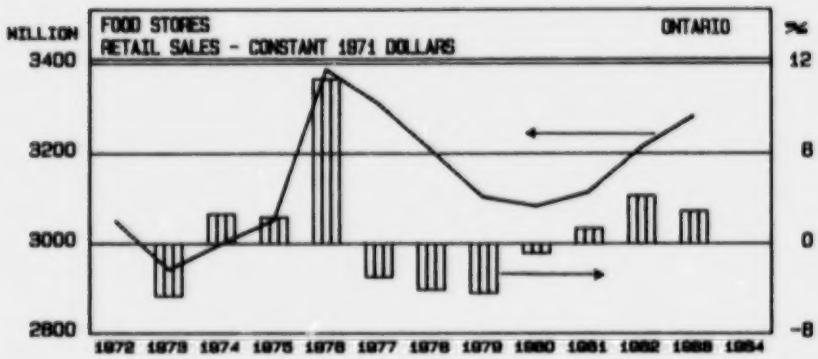
EXHIBIT 1

2.3 Industry Trends

Appendix Tables B_1 to B_4 present key industry indicators for the years 1972 to 1984.

2.3.1 Aggregate Output

EXHIBIT 2



Retail trade statistics for 1971 are not consistent with the data published from 1972 onward. As a result, aggregate output trends have been examined beginning with 1972.

During the period 1972 to 1981, food stores' sales in constant 1971 dollars experienced an average annual rate of growth of 0.2 per cent in Ontario (Appendix Tables B_1 to B_4). The pattern of growth in real food store sales was not smooth through the 1970's. From 1972 to 1976, real sales climbed rapidly averaging an annual growth rate of 2.7 percent in Ontario and 2.5 percent in Canada as a whole. In the latter half of the decade (1976-1981), real sales declined averaging an annual rate of decline of 1.7 percent in Ontario and 0.9 percent in Canada. The reasons for this slowdown are summarized in the following table.

EXTERNAL ENVIRONMENT FOR

FOOD STORE RETAILERS IN ONTARIO

	1972-1976	1976-1981	1981-1984
Population Growth	+	-	-
Population Age	+	-	-
Inflation	+	-	-
Lifestyles	+	±	±
Personal Income/ Consumer Squeeze	+	-	-
Average Annual Change in Food Stores Sales Volume (Percent)	2.7	(1.7)	0.8

\+ = positive effect
\- = negative effect
( ) = indicates decline

SOURCE: Tables B3 and B4 and Economics Practice, Currie, Coopers & Lybrand

In the period from 1981 through 1984, retail food sales picked up in volume, rising at an average annual rate of 0.8 percent in Ontario over the three years.

2.3.2 Competitive Position

Food store retailers were quick to respond to the changing marketplace because of the extremely competitive nature of

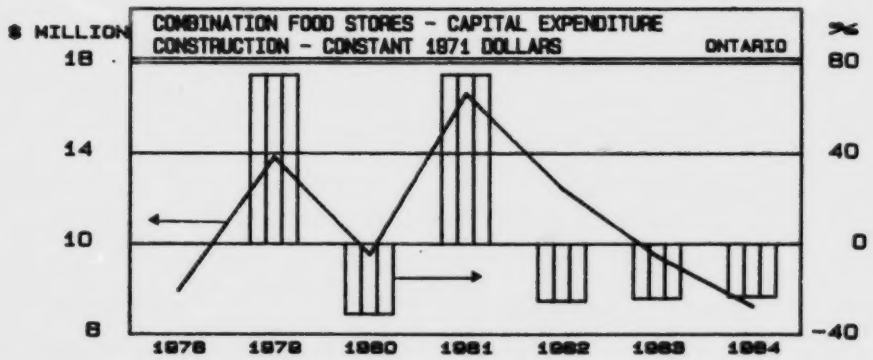
food retailing through the second half of the 1970's. The squeeze on food retailers' margins has forced the closing of traditional supermarkets and others are being sold or converted to new store formats.

The major food chains have not only faced increasing competition amongst themselves but also from a steady growth in the number of independent food retailers since the mid 1970's. The independents' market share has increased from 20 percent of food combination store retailing in Ontario in 1978 to 25 percent in 1983. Independents have lower overheads and often lower operating costs than the major chains. Their lower cost structure and, by implication, higher operating margins, have accounted for their success.

2.3.3 Capital Investment

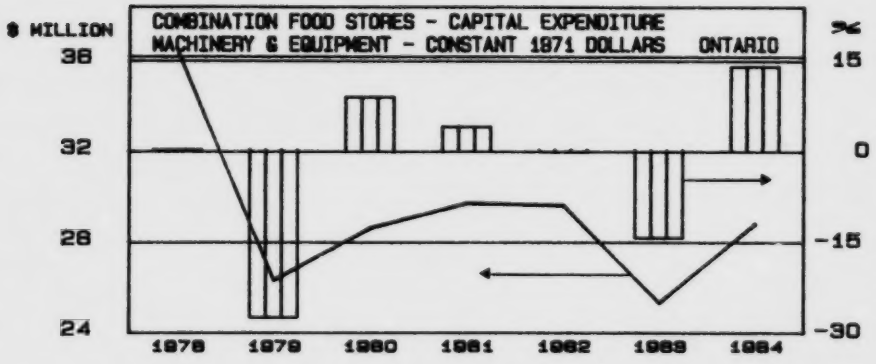
Capital investment statistics are only available for the combination food stores' component of SIC 631 Food Stores, but in 1983, combination food stores' sales represented 76 percent of total food store sales in Ontario.

EXHIBIT 3



Capital spending in constant 1971 dollars by combination food stores has been flat in Ontario since 1978. (Tables B1 and B2). With the exception of a temporary sharp upswing in expenditures in 1981, real capital spending on construction remained in the $8 million to $17 million range from 1978 through 1984 (Exhibit 3). Meanwhile, real expenditures on machinery and equipment ranged between $25 million in 1983 and $36 million in 1978 (Exhibit 4). The low point in total spending occurred in 1983 because food retailers were forced to cut back on investment in order to reduce debt and interest charges. The expected pick-up in 1984 will be marginal at best - a 13.8 percent real increase was indicated in the revised intentions survey at mid-year 1984.

EXHIBIT 4



It should be noted that capital spending activity by combination food stores has been much stronger in Ontario than in the rest of Canada. in 1983, combination food stores' sales represented 38 percent of the Canada total and yet capital spending by these stores in Ontario represented over 42 percent of the Canada total. A similar pattern occurred in the years 1978 through 1983:

COMBINATION FOOD STORES - 1978-1983

	Sales In Ontario As a Percent of Canada Total	Capital Expenditures In Ontario As a Percent of Canada Total
1978	40	47
1979	39	39
1980	38	39
1981	38	45
1982	38	47
1983	38	42

SOURCE: Calculated by the Economics Practice of Currie, Coopers & Lybrand from Statistics Canada data.

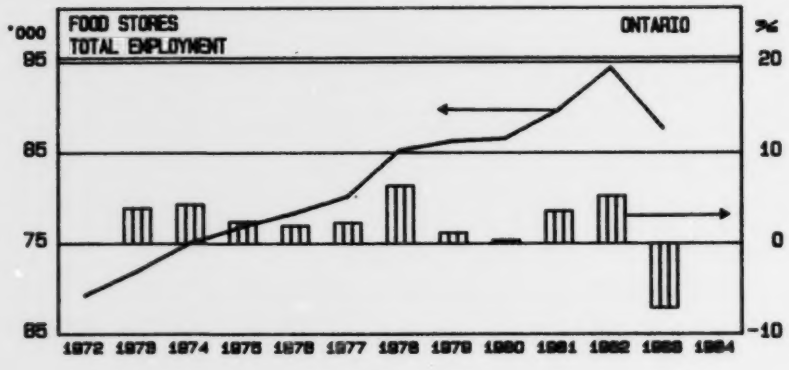
The high level of capital spending in Ontario by combination food stores over the past six years can be explained by the highly competitive nature of food retailing in the province.

2.3.4 Employment

The discussion of employment includes an analysis of aggregate trends and occupational changes.

- Aggregate Trends

EXHIBIT 5

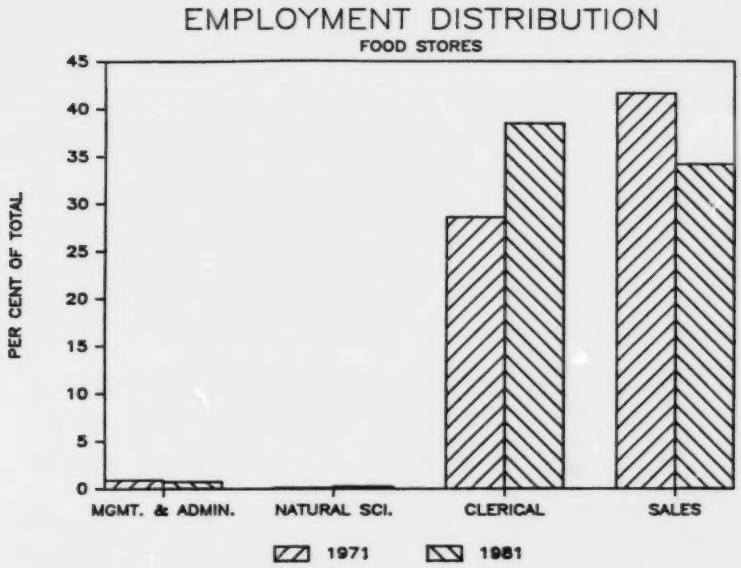


Total employment (including part-time workers) in food stores increased steadily through the 1970's at an average annual rate of 2.9 percent from 1972 through 1981. Employment increased again in 1982 before falling off somewhat in 1983. By 1983, Ontario food store retailers employed 88,000 persons compared to just under 70,000 persons in 1972. The data is shown in Tables B_1 to B_4.

In general, employment in the retail trade industry has been slow to reflect the weak sales performance of the industry in the late 1970's and the early 1980's and the effects of productivity improvements through the introduction of new technology. In large part this is because approximately 50 percent of employment in the retail trade industry consists of part-time workers. These workers continued to be included on retailers' payrolls despite the fact that most had to accept much shorter working hours. High unemployment rates and general job insecurity prevented these workers from moving elsewhere.

- Occupational Changes

EXHIBIT 6



Census data for Ontario show that total employment in the Retail Food Store Industry increased by 2.9 percent between 1971 and 1981. However, Sales occupations rose by only 0.9 percent, reflecting the introduction of labour saving equipment at the point of sale. In contrast, the number of Clerical workers rose by 5.9 per cent. Two small groups - Management and Natural Sciences showed large percentage gains of 9.7 percent and 9.0 percent respectively. (Table B5). The proportion of Clerical workers increased from 29 to 38 percent of total employees, while Sales employees declined from 42 percent of total employment in 1971 to 34 percent in 1981.

An analysis at the more detailed occupational level indicates that the fastest growing employment group within the Clerical category was stock clerks. The number of shipping clerks grew more slowly, suggesting that productivity gains occurred in the handling of merchandise when it entered the store. Supervisory salespersons experienced little growth in employment.

The data on Sales occupations tend to be misleading because the sales clerks category was eliminated in the 1981 census and most clerks moved to the salespersons category. Combining these two occupations, growth was 1.2 percent over the decade.

The analysis by sex in Table B6 indicates that although the number of jobs for females in Clerical jobs increased significantly from 1971 to 1981, female participation in Clerical jobs actually declined over the period in all the more detailed occupational categories except bookkeepers. Female representation in the broad occupational categories of Management and Administration and the Natural Sciences also increased over the decade; however, these categories of employment offered females less than 400 jobs.

PART III - FUTURE TRENDS: THE INTERVIEW RESULTS

3.0 ADOPTION OF NEW TECHNOLOGY

This chapter reviews the expected trends in the adoption of new technologies in the Retail Food Store Industry and the factors driving the need for and affecting the rate of technology adoption. The discussion is based on the expert consultation process.

3.1 New Technologies and Rates of Adoption

Retailing can be characterized as labour intensive, so key technologies are those that can reduce inventories, re-order lags, paperwork burdens, check-out time, errors and theft. Technological change in the industry over the past 15 to 20 years has been concentrated at the point of sale where food retailing is now highly computerized. The pace of change in the "back office" has been much slower. The key technologies at the point of sale are:

- Electronic cash registers are now in widespread use in food stores. They improve check-out and allow single handling (otherwise known as Ring and Bag) of food items. Studies by the American counterpart of the United Food and Commercial Workers' Union indicate that electronic cash registers increase productivity (number of items through the cash per period) by nearly 20 percent.

- Optical scanning systems that use a computer and a hologram-based optical character. They not only speed check-out, but also monitor inventories and the performance of cashiers, provide data on traffic flow to assist in manpower scheduling, and computerize re-ordering of merchandise. Optical scanners provide the customer with a computerized print-out of the items purchased and their price, and, theoretically they avoid costly item pricing. Scanners increase check-out productivity by 10 percent more than electronic cash registers.

- Automated check-out systems are also possible now, using scanners, security devices and automated funds transfer (AFT) systems. However, AFT has still not become a practical reality for the Retail Food Industry.

- New security devices are also being developed. Magnetized strips of a special, very thin metal can be attached to any packaged product. The only way to demagnetize the strip (and not set off a security alarm) is to run it past a scanner which has a built-in demagnetizer.

The implementation of new technology in the back office has been slower. Some stores have started to use a computerized inventory system to track inventories and locate slow turnover items. Other stores have adopted computerized ordering systems and systems that simplify cash transactions, verify checks or automatically debit customer's accounts.

Another important change has been in meat cutting. Many stores in urban areas no longer do their own cutting but instead take delivery of boxed beef and counter-ready cuts from central processing plants. These plants are experimenting with automatic meat-cutting machines which employ computer-guided lasers.

Credit card verification, automatic teller machines (ATMs) and electronic funds transfer systems are still in the experimental phase in food stores. Most retailers do not expect these systems to be in widespread use until the 1990's.

Exhibit 7 identifies selected technologies by time period, i.e., 'already here' to 'near-term' or 'near-term' to mid-term.

EXHIBIT 7

SELECTED TECHNOLOGIES BY TIME PERIOD IN THE RETAIL FOOD STORE INDUSTRY

'Already Here' to 'Near-Term'	'Near'- to 'Mid'-Term
- Electronic Cash Registers	- Credit Card Verification
- Point of Sale Scanners	- TV Shopping
- Optical Scanners	- Computerized Sales Aids
- Computerized Inventory Control	- Automated Warehousing
- Computerized Ordering Systems	- Automated Transfers & Set-up
	- Automatic Teller Machines
	- Electronic Funds Transfer

3.2 Forces Driving the Need to Adopt New Technology

Experts in the Retail Food Store Industry identified four key factors driving firms to adopt new technologies. In order of importance the most important factors are:

- The cost of labour,
- Consumer needs,
- The need to remain competitive, and
- The need for improved productivity.

The Cost of Labour

Slow growth in sales volumes, increases in wage settlements, and competitive pressures have squeezed food retailers profit margins in recent years. Retailers have been faced with a choice between closing down or investing in equipment that reduces costs. Since the industry is labour intensive, increasing wage costs have been a driving factor behind the adoption of technologies that reduce the cost of labour at the point of sale and in the back office.

Consumer Needs

More working women and two-income families have led to busier lifestyles and less time for food shopping. Customer pressures for more efficient check-outs has therefore been a key factor driving the need to adopt new check-out technology.

Consumer resistance to higher food prices combined with fierce price competition amongst retailers is forcing the industry to also control back office costs through the adoption of automated warehousing and computerized inventory control.

Competition

Competition amongst food retailers is particularly strong in Ontario and has been reinforced by customer pressures for more efficient check-outs and lower food prices. Discount pricing and new store formats are symptoms of the aggressive competition in the industry and key elements behind the drive to adopt new technologies. Discount pricing has forced retailers to adopt new technology to control costs so as to maintain profit margins. New, and particularly larger, warehouse store formats have encouraged the introduction of technologies that deal with higher store traffic cost effectively.

Productivity Improvements

The squeeze on retailers profit margins combined with price competition amongst retailers are driving the need to adopt new technology that offers higher productivity and by implication lower costs.

3.3 Factors That Could Slow The Rate of Technology Adoption

Retail food store experts were also asked to name the most important factors which slow the rate of technology adoption. In order of importance, the factors were:

- Cost of technology/ability to finance,
- Skills, and
- Standardization.

Cost of Technology/Ability to Finance

The most frequently cited theme referred to the two-edged problem - the ability to finance the technology and the cost of the technology. Retailers are faced with a mature growth environment and a squeeze on profits and in these circumstances the costs and benefits of new technologies must be critically assessed.

Skills

Another factor that could slow the rate of technology adoption is the lack of management and/or human resource skills to implement the technology.

Standardization

The lack of new technology standardization was also viewed as a factor which could complicate and/or limit the rate of technology adoption.

Lack of employee acceptance and union resistance were not generally viewed as key negative factors that could slow the rate of adoption of new technology.

4.0 INDUSTRY OUTLOOK TO 1995

This chapter presents the views of industry experts on the anticipated outlook for the Retail Food Store Industry in terms of aggregate output (i.e. retail sales in Ontario), investment plans, aggregate employment and changes in occupational structure to 1995.

4.1 Output to 1995

Retail sales of foods stores (in constant 1971 dollars) increased at an average annual rate of 0.2 percent from 1972 to 1981 and at a 2.7 percent rate from 1981 to 1983. In 1984, volume sales declined by 3.0 percent over year-earlier levels. Experts in the industry viewed the relatively strong pick-up in volume from 1981 to 1983 as a symptom of the 1981-1982 economic recession which encouraged more eating-at-home at the expense of eating-out. The outlook for the period 1985 to 1990 and 1990 to 1995 calls for modest growth in line with the rate of increase in the population. In general, industry experts forecast real sales volumes to increase at an average annual rate of 1 percent over the decade ahead.

4.2 Investment Patterns

Industry experts were asked about the Retail Food Store Industry capital investment plans over the period 1985 to 1990 and 1990 to 1995. The interviewers expected that the largest portion, (about 75 percent) of the industry's capital investment would go towards machinery and equipment as compared to structures and buildings (about 25 percent) over the decade ahead. Only 10 percent of construction investment is expected to be related to new technology. However, 25 percent of the machinery and equipment investment will be related to new technology.

4.2.1 Justifying Financial Investment In New Technology

Return on investment (R.O.I.) was the most commonly mentioned tool for evaluating investment decisions in the

Retail Food Store Industry. Pay-back period was also mentioned, but less frequently.

4.2.2 Source of New Capital Spending

Approximately 80 percent of all capital funds for the food store industry are expected to be generated internally from cash flow. The remainder will be raised from external sources.

4.3 Employment to 1995

This section reviews the expected trends in employment patterns and the most important factors that will influence employment levels in the Retail Food Store Industry.

4.3.1 Factors Affecting Employment

The most important factors affecting firms' employment levels in Ontario were noted as:

- Market share,
- Collective agreements, and
- Legislation.

Industry executives see market share as a driving force behind the rate of store expansion and thus employment levels in the industry. Collective agreements dealing with manning issues are also rated as an important factor affecting employment levels. Finally, government legislation that could change the attractiveness of part-time employees is perceived as an important factor which could alter the mix and level of employment in the Retail Food Store Industry over the next ten years.

4.3.2 Employment Outlook

From 1972 to 1981, employment in the Retail Food Store Industry increased at an average annual rate of 2.9 percent from 69,200 to 89,600 persons. In 1982, employment increased once again to 94,300 persons; however, in 1983, employment declined, for the first time in a decade, to 87,600 persons.

In terms of the future, industry experts expect employment to pick up sharply in 1985, increasing by 4.0 percent on average over 1984 levels. Thereafter, employment will average increases of 2.0 percent per annum from 1985 to 1990 and 1.5 percent from 1990 to 1995. In summary, the industry foresees a lower growth rate in the mid-term (1990 to 1995) as compared to the near-term (1985 to 1990). Also, employment growth in the decade ahead will be below the rates experienced during the period from 1972 to 1981.

4.3.3 Trends in Part-Time Work

In 1981, part-time workers represented approximately 50 percent of total employment in the Retail Food Store Industry in Ontario. Over the decade ahead, the proportion of part-time employees is expected to increase to approximately 60 percent of total employment.

4.4 Changes in Occupational Structure

Industry experts were asked about expected changes in the occupational structure of the Retail Food Store Industry work force over the next ten years. The responses indicated the following:

- An increase in the proportion of the industry's work force in the Managerial, Administrative and Related occupations.

- An increase in the share of the Natural Science, Engineering and Mathematics occupations.

- A decline in firms' proportion of total employment in Clerical occupations, particularly in general office clerk occupations.

- A relatively constant proportion of the retail trade industry work force in Sales occupations.

5.0 EMPLOYMENT EFFECTS OF NEW TECHNOLOGY

This chapter reviews the survey results on the employment effects of new technology in terms of skills match, skill requirements, and impact on skill levels and job content.

5.1 Effects on Occupations

This section summarizes industry experts' expectations of technology impacts on occupational requirements. Several occupations are anticipated to have an oversupply of skills, namely:

- Cashiers and tellers,
- Bookkeepers and accounting clerks,
- Shipping clerks,
- Stock clerks,
- Secretaries,
- Typists/clerk typists,
- General office clerks,
- Salespersons/sales clerks.

The occupations where a shortage of skills is anticipated are:

- Managerial, Administrative and Related,
- Natural Science, Engineering and Mathematics,
- Sales supervisors.

In general, high quality, specialized skill occupations are expected to be in short supply.

5.2 Likely Steps to Deal With Skills Oversupply

In dealing with a potential oversupply of skills in the Retail Food Store Industry, the most commonly cited action which would

affect the largest number of people was attrition. The second most frequent response was retraining. Other measures mentioned were lay-offs and job-sharing.

5.3 Likely Steps to Deal With Skill Shortages

In coping with anticipated skill shortages, industry experts expected the most common action to be upgrading. The second most common action was expected to be recruiting. Occupations in the Natural Sciences, Engineering and Mathematics were regarded as an exception - firms would recruit first before upgrading in order to deal with skill shortages in these occupations.

5.4 Technology Impact on Skill Levels and Job Content

Respondents were asked to rank the impact of new technologies on selected occupations in terms of:

- Skills required,
- Time to achieve proficiency, and
- Knowledge of of firm's operations.

Industry experts' responses suggested that technology will increase the skill levels of almost all the selected occupations, including:

- Managerial, Administrative and Related,
- Natural Sciences, Engineering and Mathematics,
- Clerical, and
- Sales.

The responses also indicated that more time would be required to achieve proficiency in all the occupations. Although most experts expected technology adoption to increase the need of industry employees to have enhanced knowledge of organizations'

operations in the Managerial, Administrative and Related and Natural Science, Engineering and Mathematics occupations, about the same amount of knowledge of the company's operations was expected to be required in other occupations.

5.5 Training Costs and New Technology

Experts in the Retail Food Store Industry estimate that training costs as a percent of total labour costs are currently around 1 percent. This proportion is expected to increase to about 1.5 percent by 1990. Approximately 20 percent of training costs are estimated to be related to new technology. By 1990, about 35 percent of training costs are expected to be related to new technology.

6.0 LABOUR RELATIONS ENVIRONMENT

This chapter discusses the labour relations environment in the retail Food Stores Industry.

6.1 Industrial Relations Environment: Historical

The retail food stores' employees are represented by 11 unions in Ontario which are as follows:

- United Food and Commercial Workers.
- Retail Wholesale Department Store Workers.
- National Council of Canadian Labour Carpenters.
- United Steelworkers.
- International Operating Engineers.
- Teamsters.
- Service Employees International.
- Machinists.
- 2 independent local unions.

In total, 42,226 employees are represented, or about 48 percent of the total employees in the industry.

The United Food and Commercial Workers (UFCW) is the largest union representing 59 percent, followed by the Retail Wholesale and Department Store Union which represents an additional 30 percent of the 42,226 unionized employees in food stores. The major employers with union agreements include most of the larger retail food store chains: Loblaws, A & P, Steinberg, Canada Safeway and Dominion Stores as indicated in Table B7.

6.2 Trends in Unionization

Industry experts expect little change in the percentage of unionization within firms which already have a union.

6.3 Technology Change Clauses

The most common concerns regarding new technologies for which unions negotiate in their settlements with management include:

- Consultation with management prior to the introduction of a technological change;
- Advance notice of technological innovations; and
- Job security.

Further issues included in some union agreements which mitigate against the impacts of new technology on the work force include the following clauses:

- Transfer arrangements for employees displaced by technological change;
- Income protection, whereby loss of income results from a transfer to a new job from an old one, displaced by new technology;
- Transfer arrangements for new job placement within the company if job losses result from new technology adoption; and
- Attrition arrangements, whereby an orderly reduction of jobs in a company's work force is implemented by using voluntary resignations, deaths and retirements.

6.4 Management's Perception of their Union's Position on New Technology

Industry experts, in general, agreed that unions accept the need to adopt new technology. This is consistent with the fact that experts do not see union resistance as a factor which would slow the rate of new technology adoption.

6.5 Nature of Worker Involvement in the Process of Technological Change

Industry experts were asked to indicate whether retail food stores had a formal mechanisms for worker participation in:

- Setting production and/or sales targets at various levels in the organization;
- Improving productivity/quality; and
- Adopting new technology.

The responses indicated that no formal mechanisms for worker participation are in place; however, informal mechanisms are commonplace.

6.6 Views on Involving Workers in Decisions on Adopting New Technology

Industry experts were asked to what extent and how management should involve workers in decisions regarding the adoption of new technologies. Generally, it was agreed that workers should be involved in informal discussions dealing with the adoption of new technologies. As well, management should seek worker feedback on new technologies. Therefore, some degree of consultation was expected and desirable according to the experts.

7.0 PLANNING FOR TECHNOLOGICAL CHANGE

The following section reports the responses of industry experts to questions related to planning for technological change. Most firms in the Retail Food Stores Industry have the following plans:

- A long-term strategic plan;
- A human resource plan; and
- A capital investment plan dealing with the adoption of new technologies.

The human resource and capital investment plans typically deal with the period to 1990. All three plans are perceived to be reasonably highly integrated.

SECTION II - GENERAL MERCHANDISE STORES

PART II - HISTORICAL TRENDS 1971-1984

2.0 INTRODUCTION

This section of the report provides an historical analysis of General Merchandise Store Industry trends for the period 1971 to 1984.

2.1 The Structure of the Industry

In 1984, general merchandise stores had sales of $16.9 billion or 14.5 percent of total retail trade in Canada and $5.8 billion or 13.2 percent of total retail trade in Ontario. The tables of this section of the report are presented in Appendix B.

General merchandise stores include department stores, general merchandise stores, general stores and variety stores. Department stores are by far the largest group of general merchandise retailers, accounting for 72 percent of sales in 1984.

GENERAL MERCHANDISE STORE SALES IN ONTARIO
1984

	$ MILLIONS	PERCENT OF TOTAL
Department Stores	4,150	72.1
General Merchandise Stores	1,017	17.7
General Stores	191	3.3
Variety Stores	395	6.9
TOTAL GENERAL MERCHANDISE STORES	5,753	100.0

SOURCE: Statistics Canada, Retail Trade, March 1985, Cat. No. 63-005.

The department stores group includes senior as well as junior department store retailers. Senior department stores carry quality merchandise in the middle to upper price ranges while the juniors are known for merchandise in the middle to lower price ranges. Well known senior department stores in Ontario are The Bay, Eaton's, Simpsons and Sears. Other lesser known senior department stores are Ogilvy's, Goodies and G.W. Robinson. Junior department stores include K-Mart, Miracle Mart, Towers, Woolworths and Zellers. All department stores are classified as chain stores; there are no department stores classified as independents even though some of the above mentioned stores may operate less than four retail outlets in the same kind of business, under the same legal ownership.

General merchandise stores include general merchandise stores with less than one-third food as well as department stores' mail order and catalogue sales offices. Bi-Way is an example of a general merchandise store operating in Ontario. Sears' catalogue sales office would also be classified in this group of retailers. General merchandise stores may be chains or independents.

General stores include general stores with more than one-third food. Variety stores are simply defined as variety stores. These two groups of stores include a host of chain and independent retailers.

2.2 The Market Environment

There are three driving forces that determine developments in general merchandise retailing:

- the growth in personal incomes,
- the growth and age structure of the population, and
- competition for market share.

All three have been undergoing fundamental changes over the past decade with the result that the industry is undergoing a major structural adjustment. These changes have been triggered by a combination of secular (long term) and cyclical (short term) trends. The secular changes which began in the 1970's and will continue into the 1990's, are:

- Slower Population Growth

  From 1971 to 1976, Ontario's population grew at an average annual rate of 1.4 percent per year. In the period 1976 to 1981, growth slowed to 0.9 percent, reflecting the decline in birth rates that started in the 1960's, slower immigration from abroad, and a temporary but significant out-migration to Alberta. From 1981 to 1984, population growth averaged 1.2 percent a year. The underlying trend towards slower population growth has caused a deceleration in the rate of increase in the number of consumers and slower growth in retail sales.

- An Aging Population Profile

  The fall in the birth rate since the 1960's has led to an absolute decline in the number of children and teenagers and to a gradual aging of the population. In 1971, 46 percent of Ontario's population was over 30 years of age; by 1981, the ratio had increased to 51 percent and it will go on rising over the next decade. As people grow older, their buying habits change. Young people in their twenties stock up on furniture, appliances, linens, soft furnishings, etc. As they reach their thirties, however, they become a replacement market, buying only when they wish to upgrade or replace their existing goods.

- Inflation

The 1970's were characterized by a number of price shocks affecting the necessities of life - food, energy and shelter. These price shocks forced families to reallocate their budgets, cutting back on the non-necessities. This ate into the share of the family budget going to clothing, appliances and other items where purchases can be delayed. The financial squeeze forced many women to go out to work to help the family maintain its living standard. It also led many families to increase their savings, if they could, in order to protect themselves against economic insecurity. Retailers, therefore, found it necessary to provide new lines of low priced products and to create new types of stores offering no-frill services such as the discount stores and junior department stores. This climate also increased the market for do-it-yourself home renovations.

- Changing Lifestyles

There were several changes in lifestyles that affected retailing:

- The rapid income gains of the early 1970's and the high level of affluence in a significant number of two income families created an "up-market" segment with more sophisticated and diverse tastes.

- The increased interest in health and exercise led to much more demand for sports clothes, especially for sports shoes. In fact, the whole shoe product line has been revolutionized from children's sizes through adults.

These lifestyle changes have affected general merchandising in many ways, the most important being the segmentation of the market into specialized products and retailing outlets. Consumers shop more carefully for value and for price on many standard items, but a significant number of consumers also are prepared to spend freely for high quality items, such as home entertainment equipment and specialized clothing.

The net effect of these secular changes has been to trigger a revolution. The retailers with foresight and adaptability grew at the expense of slower moving, less innovative competitors, and in general, the senior department store chains have been slower to respond to the new market environment than the other retailing groups which make up SIC 642.

Competition for the consumer's dollar cuts across all categories of stores. In general, the senior department stores, which have the broadest product line and which once dominated the market, are on the defensive against both new entrants into the shopping plaza and older, but more adaptable, competitors such as the junior department stores, i.e., Zellers, Woolco, etc. Despite this competition across categories, there is overlapping ownership. For example, The Hudson Bay group controls The Bay, Simpsons and Zellers in Ontario.

A major set of competitors to department stores are not included in the data being examined in this study. Companies like Canadian Tire, Shoppers Drug Mart, Dylex and the Grafton Group are examples of new retailing vehicles capitalizing on the opportunity of the shopping plaza, which now duplicates the one-stop shopping experience once provided only by department stores. They are posing a major

threat to the traditional department store and changing the competitive structure of the industry as all retailers fight for the shrinking consumer dollar.

In addition, the industry had to cope with a more volatile cycle in consumer spending patterns created by the sharp deceleration in the growth in personal disposable income in the late 1970's. The average Canadian suddenly entered a period when wage increases no longer exceeded the average increase in consumer prices. The squeeze on consumer budgets was most severe in 1979 to 1982, but it has continued through to 1984.

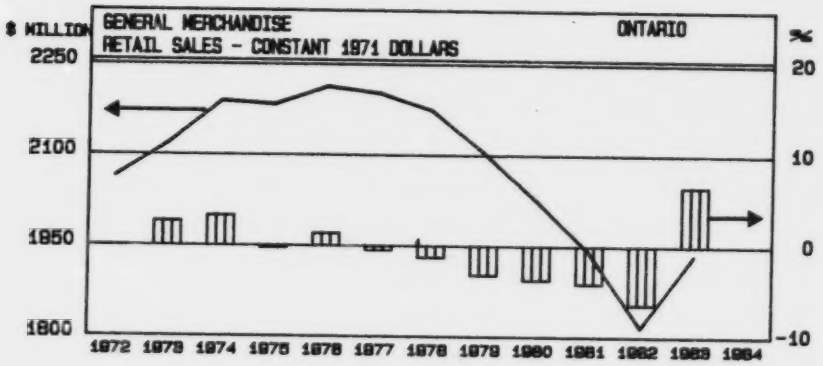
EXHIBIT 8

2.3 Industry Trends

The following analysis covers aggregate output, capital investment and employment trends.

2.3.1 Aggregate Output

EXHIBIT 9



Retail trade statistics for 1971 are not consistent with the data published from 1972 onward. As a result, aggregate output trends will be examined from 1972 onward. During the period 1972 to 1981, general merchandise store sales in constant 1971 dollars recorded an average annual decline of 0.7 percent in Ontario (Tables B8 to B11). This compares to an average annual rate of growth for Canada as a whole of 0.4 percent over the same time period.

From 1972 to 1976, real sales in Ontario increased steadily averaging an annual growth rate of 1.8 percent. By the latter half of the 1970's, real sales declined at an average rate of 2.6 percent per year from 1976 through 1981. In Canada, strong average annual increases of 3.3 percent in the period from 1972 through 1976 were also followed by average annual declines of 1.9 percent from 1976 through 1981.

When the economic recession hit with full force in the early 1980's, general merchandise stores' sales in constant dollar terms fell to the lowest level since 1972. In 1983, general merchandise stores' sales in Ontario recorded a real increase of 6.5 percent - the first increase in volume terms in seven years.

General merchandise stores have undergone a shakeout in the past decade. The senior department stores, which represented 72 percent of the sales for the general merchandise stores category in 1984, are past the peak in their current life cycle curve. They were severely affected by the drop in sales after 1977 because they invested in substantial amounts of new store space in the mid-1970's and they were unable to attract the increase in sales needed to cover the cost of the new floor space. Firms such as The Bay, Simpsons and Eatons have been fighting against new category specialty retailers, such as Dylex Ltd. and Canadian Tire Corp. There has also been a battle raging within the department store sector. The sales of the major chains have been overshadowed in recent years by those of their junior rivals - chains such as F.W. Woolworth Co., K-Mart Canada and Zellers Inc., and by sales of general merchandise stores - such as Bi-Way, Bargain Harold's, Nabour Stores and the catalogue stores. This latter group posted a 14.8 percent increase in sales in the period 1981-1983, while all other groups of stores in this SIC reported significant declines.

A summary of historical influences on general merchandise stores is presented in the following table.

EXTERNAL ENVIRONMENT FOR GENERAL MERCHANDISE STORE RETAILERS IN ONTARIO

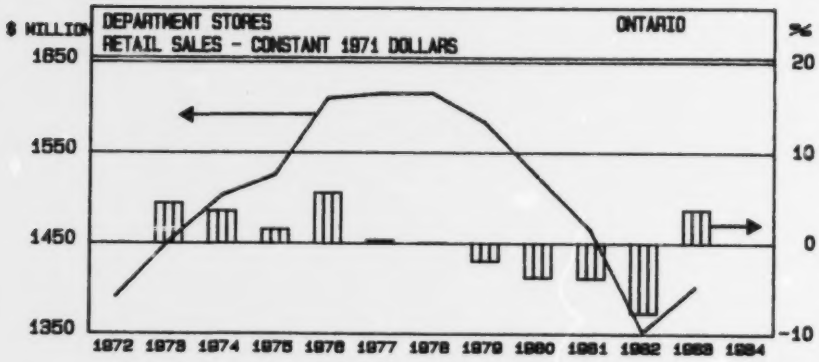
	1972-1976	1976-1981	1981-1983
Population Growth	+	-	-
Population Age	+	±	±
Inflation	+	-	-
Lifestyles	+	-	-
Purchasing Power	+	-	-
Average Annual Rate of Change in Merchandise Stores Sales Volume (Percent)	1.8	(2.6)	(0.2)

\+ = Positive effects.
\- = Negative effects.
( ) = Indicates decline.

SOURCE: Tables B8 and B10 and Economics Practice, Currie, Coopers & Lybrand.

Department stores have compounded their problems by being slow to recognize competitive forces at work. Currently, the major chains are attempting to broaden their appeal, upgrade their presentation and corporate image and trade up to a more affluent fashion-conscious, older consumer.

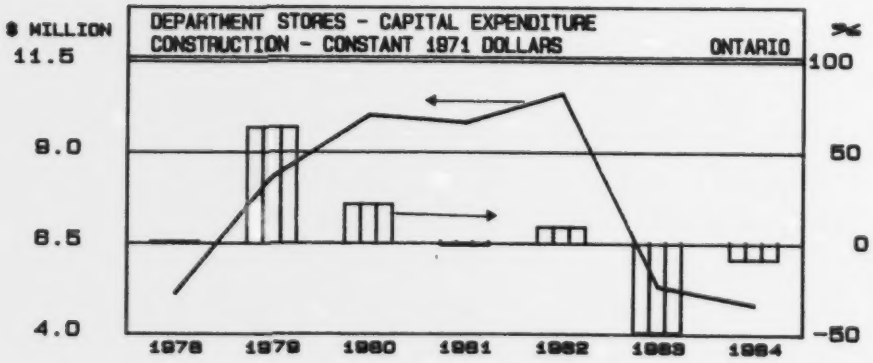
EXHIBIT 10



2.3.2 Capital Investment

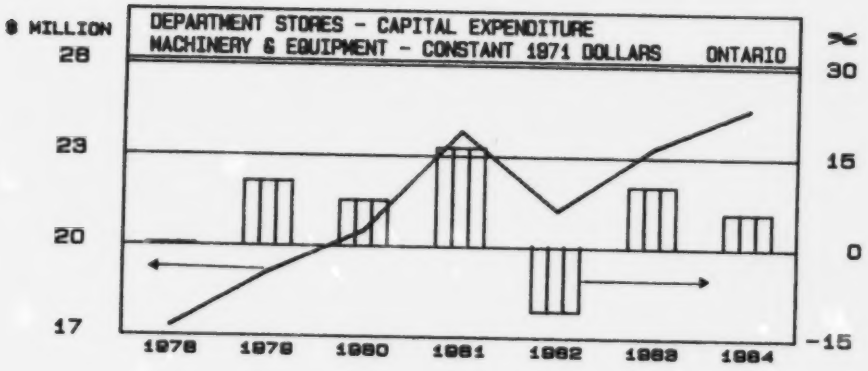
Capital investment statistics are available only for the department stores' component of SIC 642 General Merchandise Stores. In 1984, department stores' sales represented 72 percent of total general merchandise store sales in Ontario.

EXHIBIT 11



Total capital spending by department stores in Ontario in constant 1971 dollars increased from $22 million in 1978 to a peak of $34 million in 1981 before falling to a low of $29 million in 1983 following the 1981-1982 recession.

EXHIBIT 12



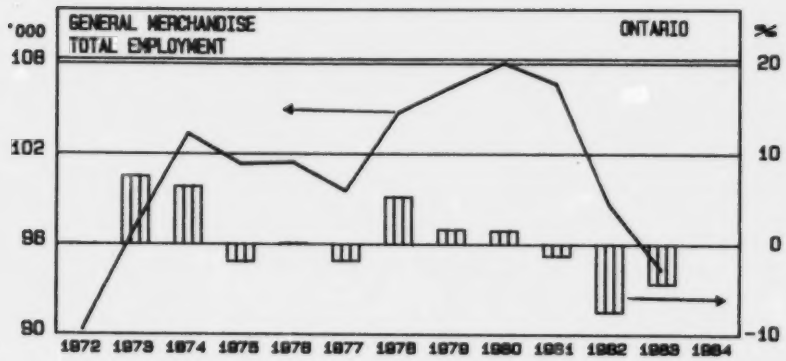
On average, expenditures on machinery and equipment have represented 72 percent of total capital spending by department stores in Ontario since 1978. In 1983, over 81 percent of department stores' capital expenditures were on machinery and equipment. This reflects the fact that department stores concentrated on expanding floor space in the first half of the 1970's.

2.3.3 Employment

The discussion of employment for general merchandise stores includes an analysis of aggregate trends and occupational changes.

- Aggregate Trends

EXHIBIT 13

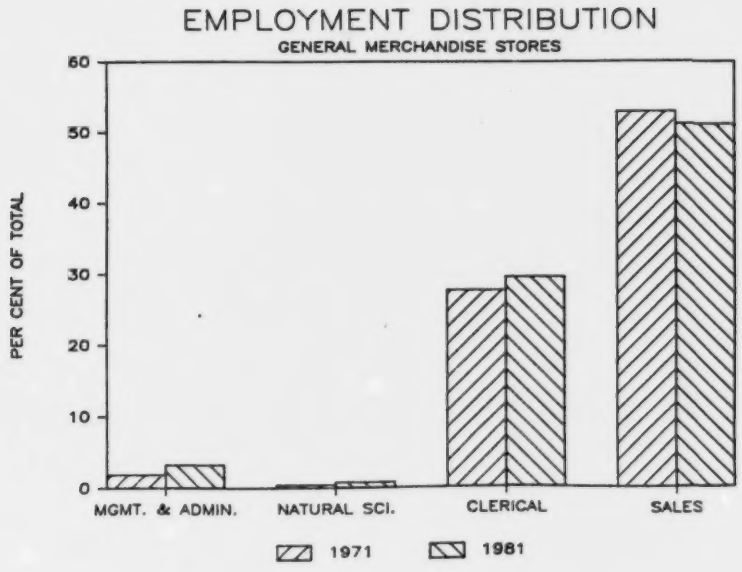


Total employment (including part-time workers) in general merchandise stores increased at an average annual rate of 1.9 percent between 1972 and 1981. Since 1981, employment has fallen off significantly - declining by an average of 5.9 percent between 1981 and 1983. In 1983, general merchandise stores employed 94,000 persons in Ontario compared to 90,000 persons in 1972.

- Occupational Changes

General merchandising total employment grew by 2.2 percent from 1971 to 1981. Sales occupations grew more slowly - by 1.9 percent, but clerical jobs, which account for half of total employment, grew by 2.9 percent.

EXHIBIT 14



Census data for general merchandise stores indicates that Natural Science occupations and Management and Administrative staff increased at an average annual rate of 9.0 percent and 7.4 percent respectively (see Table B12).

Accordingly, Clerical workers and Management and Administration employees experienced the largest increase in the importance of their occupational categories as a percent of total employment from 1971 to 1981. Meanwhile, the proportion of Natural Science workers increased fractionally and the proportion of Sales personnel declined.

An analysis at the more detailed occupational level indicates that employment in sales management occupations increased at a particularly rapid average annual rate of 25.0 percent over the 1970's. Amongst Clerical workers, shipping clerks, cashiers and stock clerks grew faster than the Clerical group as a whole, while secretaries and general office clerks grew more slowly.

Within the Sales group, the numbers for salespersons and sales clerks were combined to adjust for classification changes between 1971 and 1981. The combined group increased by 2.2 percent, faster than the overall average for sales staff. The declining occupations were the remaining significant detailed occupations: supervisors of sales personnel, sales occupations related to commodities, and buyers in wholesale and retail trade.

An analysis by sex for general merchandise stores indicates that female representation increased most, as a percent of total employment, in sales management, the Natural Sciences and in Sales occupations. However, Natural Sciences provided only 200 new jobs. The representation of female employees actually declined in all Clerical occupations except stock clerks.

PART III - FUTURE TRENDS: THE INTERVIEW RESULTS

3.0 ADOPTION OF NEW TECHNOLOGY

This chapter reviews the expected trends in the adoption of new technologies in the General Merchandise Store Industry and the factors driving the need for and affecting the rate of technology adoption. The discussion is based on the expert consultation process.

3.1 New Technologies and Rates of Adoption

The General Merchandise Store Industry is labour intensive, implying that key technologies are those that can reduce inventories, re-order lags, paperwork burdens, check-out time, errors and theft. Technological change in the industry over the past 10 to 15 years has been concentrated in the administration of sales and not at the point of sale.

The main influences in this area include electronic cash registers and computerized inventory control.

- Electronic cash registers are playing an important role in sales administration since they provide records compatible with computerized inventory control.

- Computerized inventory control is becoming widespread. Such systems bring together sales and inventory stock data to provide up to date monitoring of inventories. They can be programmed to identify goods whose stocks have fallen low enough to require re-ordering.

In the next few years, the focus of change is expected to shift toward payment systems at the point of sale as well as to improve contact with customers through such systems as T.V. shopping.

- Electronic funds transfer and automated transfers are expected to make cashless shopping feasible. General merchandisers will rely on credit card verification techniques currently under development to help deal with these changes.

- Automated warehousing also opens up the possibility of reducing labour costs in the handling of inventory.

EXHIBIT 15

SELECTED TECHNOLOGIES BY TIME PERIOD IN THE GENERAL MERCHANDISE STORE INDUSTRY

'Already Here' to 'Near-Term'	'Near'-to 'Mid'-Term
- Electronic Cash Registers	- Credit Card Verification
- Point of Sale Scanners	- TV Shopping
- Optical Scanners	- Computerized Sales Aids
- Computerized Inventory Control	- Automated Warehousing
- Computerized Ordering Systems	- Automated Transfers & Set-Up
	- Automatic Teller Machine
	- Electronic Funds Transfer

3.2 Forces Driving the Need to Adopt New Technology

Experts in the General Merchandise Store Industry identified three key factors driving firms to adopt new technologies. In order of importance the most important factors are:

- The cost of labour,
- The need to remain competitive, and
- The need for improved productivity.

The Cost of Labour

Several factors have held down profits in general merchandising in recent years. These include slow growth in sales volumes, increases in wage settlements, and competitive pressures. The labour intensive nature of the industry has induced firms facing increasing wage costs to consider the adoption of technologies that reduce the cost of labour in sales administration, at the point of sale and in the back office.

Competition

Competition amongst general merchandise stores is particularly strong as the traditional department store fights to retain customers as the new smaller specialized chain boutiques aggressively take market share. Discount pricing and new store formats are symptoms of the aggressive competition in the industry and key elements behind the drive to adopt new technologies. Discount pricing has forced retailers to adopt new technology to control costs so as to maintain profit margins.

Productivity Improvements

Slow market growth and low profit margins have induced firms to attempt to improve productivity with the aid of new technology. In so doing firms have sought to reduce labour costs in such tasks as inventory management.

3.3 Factors That Could Slow The Rate of Technology Adoption

General merchandise store experts were also asked to name the most important factors which could slow the rate of technology adoption. In order of importance, the factors were:

- Cost of technology/ability to finance,
- Skills,
- Standardization.

Cost of Technology/Ability to Finance

The most frequently cited theme referred to the two-edged problem: the ability to finance the technology and the cost of the technology. The industry's restricted cash flow and limited sales growth expected in future have held back even the largest firms from adopting new technologies. Installation costs may be high and any difficulties in adapting new systems would be incurred at a time when firms could little afford them.

Skills

Another factor often cited that could slow the rate of technology adoption was the lack of management and/or human resource skills available in the traditional department store business to implement the technology.

Standardization

The lack of new technology standardization was also viewed as a factor which could complicate and/or limit the rate of technology adoption.

Lack of employee acceptance and union resistance were not generally viewed as key negative factors that could slow the rate of adoption of new technology.

These restraining forces are similar to those stated by the Retail Food Store Industry. However the cost of technology and the ability to finance were considered to be more of a restraining force in the General Merchandise Store Industry because of the severe profit squeeze the industry has been dealing with during the past several years.

It is important to note that the specialty merchandise groups, which are not covered in the study but are the competition to old established general merchandise companies, have proceeded with technology adoption. It is by the use of this technology for buying, inventory control, cash management, etc. that the specialty chains have so successfully re-shaped the shopping habits of Canadian consumers.

4.0 INDUSTRY OUTLOOK TO 1995

This chapter presents the view of industry experts on the anticipated outlook for the General Merchandise Store Industry in terms of aggregate output (i.e. department store sales in Ontario), investment plans, aggregate employment and changes in occupational structure to 1995.

4.1 Output to 1995

Department store sales (in constant 1971 dollars) declined at an average annual rate of 0.7 percent from 1972 to 1981 and were unchanged from 1981 to 1983. In 1984, volume sales increased by 0.5 percent over year-earlier levels. Experts in the industry viewed the stagnation in the sales volume from 1981 to 1983 as a reflection of the 1981-1982 economic recession which cut sharply into consumer expenditure levels. The outlook for the period 1985 to 1990 and 1990 to 1995 calls for modest growth in line with the rate of increase in the population. In general, industry experts forecast sales volumes to increase at an average annual rate of about 1 percent over the decade ahead. However, they caution that this assumes that department stores will be able to stall any further erosion in their share of consumer expenditure.

4.2 Investment Patterns

In discussions with the General Merchandise Stores on the expected levels and types of capital investment they anticipated over the next decade, the opinion expressed was generally that this sector will see little expansion in new stores but the emphasis will be on machinery and equipment expenditures. This largely reflects the over-capacity that exists in the industry, the need to renovate and the requirement to increase productivity.

4.2.1 Justifying Financial Investment in New Technology

Return on investment (R.O.I.) was the most commonly mentioned tool for evaluating investment decisions.

4.2.2 Source of New Capital Spending

Historically 80 percent of all capital expenditures has been generated from internal funds. Experts in the industry admitted that currently the industry is not generating the levels of cash flow to finance the levels of investment required. This means that firms will delay investment and the all important productivity improvements and restructuring, or turn increasingly to external funds.

4.3 Employment to 1995

This section reviews the expected trends in employment patterns and the most important factors that will influence employment levels in the General Merchandise Store Industry.

4.3.1 Factors Affecting Employment

The most important factors affecting firms' employment levels in Ontario were noted as:

- Market share.
- Legislation.
- Ability to compete.

Industry executives see market share as a strong influence upon cost control efforts and thus employment levels in the industry. Secondly, government legislation that could change the attractiveness of part-time employees is perceived as an important factor which could alter the mix and level of employment in the industry over the next ten years. A third influence on employment is

the firms' overall ability to compete successfully, both within their industry and with the new competitors in a rapidly changing consumer market.

4.3.2 Employment Outlook

From 1972 to 1981, employment in general merchandise stores increased at an average annual rate of 1.9 per cent from 90,300 to 106,600 persons. However, by 1983, employment had declined to 94,300 persons.

The firms interviewed agreed that a further contraction in the numbers employed would take place over the next several years as the general merchandise sector adjusts to the new consumer market environment. Once the industry has found its new niche employment levels will stabilize and possibly rise as the volume of sales increase.

4.3.3 Trends in Part-Time Work

Part-time workers account for approximately 40-50 percent of total employment in the general merchandise industry. The expert interviews suggest that the number of people employed on a part-time basis will rise but will depend on legislative factors.

5.0 EMPLOYMENT EFFECTS OF NEW TECHNOLOGY

This chapter reviews the survey results on the employment effects of new technology in terms of skill match, skill requirements, and impact on skill levels and job content.

5.1 Effects on Occupations

This section summarizes industry experts' expectations of technology impacts on occupational requirements. Several occupations are anticipated to have an oversupply of skills, namely:

- Cashiers,
- Bookkeepers and accounting clerks,
- Shipping clerks,
- Stock clerks,
- Secretaries,
- Typists/clerk typists,
- General office clerks,
- Salespersons/sales clerks.

The occupations where a shortage of skills is anticipated are:

- Managerial, Administrative and Related,
- Natural Science, Engineering and Mathematics,
- Sales supervisors.
- Buyers.

In general, high quality, specialized skill occupations are expected to be in short supply.

5.2 Likely Steps to Deal With Skills Oversupply

Industry experts mentioned attrition and retraining as the most likely way firms will deal with an oversupply of skills.

5.3 Likely Steps to Cope With Skill Shortages

Retraining is viewed by the industry experts as the most common step in dealing with skills shortages. The second most common action is expected to be upgrading of skills.

5.4 Technology Impact on Skill Levels and Job Content

Respondents were asked to rank the impact of new technologies on selected occupations in terms of:

- Skills required,
- Time to achieve proficiency, and
- Knowledge of firm's operations.

Industry experts' responses suggested that technology will increase the skill levels of almost all the selected occupations, including:

- Managerial, Administrative and Related,
- Natural Sciences, Engineering and Mathematics,
- Clerical,
- Sales.

The responses also indicated that more time would be required to achieve proficiency in all the occupations. Although most experts expected technology adoption to increase the need of industry employees to have enhanced knowledge of organizations' operations in the Managerial, Administrative and Related and Natural Science, Engineering and Mathematics occupations, about the same amount of knowledge of the company's operations was expected to be required in other occupations.

5.5 Training Costs and New Technology

Training costs are a small share of total labour costs in the General Merchandise Store Industry. Industry experts do not expect this to change in future. As well, training costs are not a large percentage of expenditures on new technology and are not expected to become larger over the next few years.

6.0 LABOUR RELATIONS ENVIRONMENT

This chapter discusses the labour relations environment in the General Merchandise Store Industry.

6.1 Industrial Relations Environment: Historical

Only 649 employees, less than 1 per cent of the 106,600 total employees in the General Merchandise Stores in Ontario, belonged to unions in 1981. The unions are listed in Table B14. The major union is the United Food and Commercial Workers representing 79 per cent of the unionized workers. The major employer of unionized workers is Steinberg Miracle Mart.

6.2 Trends in Unionization

The union activity within merchandise stores is growing and recently employees at Eatons have been lobbying for union membership. Currently, the key issue on the part of the unions is job security, whereas the companies are concerned about productivity and increasing profits.

6.3 Technology Change Clauses

The most common concerns regarding new technologies for which unions negotiate in their settlements with management include:

- advance notice of technological innovations, and
- consultation with management prior to the introduction of a technological change.

6.4 Management's Perception of their Union's Position on New Technology

Industry experts, in general, agreed that unions accept the need to adopt new technology. This is consistent with the fact that experts do not see union resistance as a factor which would slow the rate of new technology adoption.

7.0 PLANNING FOR TECHNOLOGICAL CHANGE

Industry experts report that firms in the General Merchandise Store Industry make an effort to plan for technological change. Most firms in the industry employ one or more of the following plans:

- A long-term strategic plan.
- A human resource plan.
- A capital investment plan dealing with the adoption of new technologies.

The human resource and capital investment plans typically deal with the period to 1990.

PART IV - APPENDICES

Part IV of this report presents the appendices referred to in Parts I and II in each section.

These appendices are:

Appendix	Title	Reference
A	Questionnaire	Part I
B	Historical Tables	Part II

APPENDIX A

QUESTIONNAIRE

ONTARIO TASK FORCE ON EMPLOYMENT AND NEW TECHNOLOGY

GENERAL MERCHANDISING
(SIC 642)
QUESTIONNAIRE

Currie, Coopers & Lybrand

INTRODUCTION

Thank you for agreeing to participate in the study. It is being carried out for the Ontario Task Force on Employment and New Technology, a joint labour-management group. Their mandate is to examine the extent and nature of employment change likely to result from the introduction and application of new technology in Ontario over the next ten years.

You Will Receive The Survey Results
As a participant, you will receive a report on the survey results for your industry.

All Responses Will Be Confidential
All responses will be held in strictest confidence. Responses will be analysed and used only at an industry-wide level.

Both Organized Labour and Management Are Being Surveyed
Management and organized labour participants, in the case of unionized firms, will both receive a questionnaire. We realize that labour participants may not be able to answer some of the questions. In particular, they may find difficulty in answering questions: 10, 11, 12, 13 and 17.

Participants May Want to Consult Key Resource People in Responding
The questionnaire is not necessarily meant to be completed by only one respondent. It may be appropriate and even desirable for survey participants to consult other key resource people in their firm before responding to the questionnaire. Respondents should indicate on the Participant Information (p.4), the "principle respondent" and "other respondents" as well as the Section(s) of the questionnaire to which they contributed.

(SIC 642)

You Will Save Time if Information is Filled in Before the Interview
A number of questions relate to your firm's past or present workforce and future plans. We are requesting management respondents to provide accurate information from their organization's records in advance of the interview. This step will reduce the time needed for the actual interview and also make it more meaningful. The Participant Information (p.4) and the following questions should be filled in prior to the management interview: 3, 6 to 13 inclusive, 15 and 17.

Group Interviews Are Possible
In some cases the principle respondent may want to arrange a group interview between himself, key resource people and our consultant. We would welcome such an arrangement. This option is open to either management or labour participants.

You May Wish to Complete the Entire Questionnaire Before the Interview
The entire questionnaire could be completed in advance of the interview. If this is convenient, please do so. We would, however, still wish to spend a half-hour with you to review your responses.

Your "Best" Estimate
Where estimates are required, we are asking respondents to provide us with their "best estimate". Estimating future trends is difficult. Our premise is that an expert inside the organization is in the best position to make them, based on his or her knowledge of the firm's future direction.

(SIC 642)

EXHIBIT A

SELECTED OCCUPATIONS: GENERAL MERCHANDISING, SIC 642

MANAGERIAL, ADMINISTRATIVE & RELATED (includes senior and middle management, e.g., General Manager of chains of department stores; Head Offices and administrative support functions such as Directors of Advertising, Public Relations, Sales, and Personnel & Financial Officers. See Supervisor: Sales below.)

NATURAL SCIENCE, ENGINEERING & MATHEMATICS

Systems Analysts.

CLERICAL

Secretaries.
Typist/Clerk Typist (includes Word Processing Operators).
Bookkeepers & Accounting Clerks.
Cashiers & Tellers.
EDP Equipment Operators.
Shipping Clerks.
Stock Clerks.
General Office Clerks.
All Other Clerks (includes Receptionists, Information Clerks, Telephone Operators and all others not listed above).

SALES

Supervisor: Sales (includes Working Proprietors and Managing Supervisors of stores and supervisors of departments in stores e.g., Department Manager, Store Manager).
Salespersons/Sales Clerk (e.g., Sales Clerk, Store Clerk, Floor Salesperson, Counter Salesperson).
Buyers: Wholesale/Retail.

(SIC 642)

The Study is Focusing on Selected Occupations

The Task Force for your industry is focusing on chosen major occupational groups and selected occupations within these major groups. These are listed in Exhibit A. The job titles and definitions being used are from the "Canadian Classification and Dictionary of Occupations, 1971" (CCDO). The CCDO is a universal system of job titles and descriptions. Our consultants are available to assist you or your staff in clarifying which of your firm's positions should be considered in the CCDO titles listed in Exhibit A.

Please Call If You Have Any Enquiries

Should you or your staff require any assistance, please call Sandra Skivsky of our firm or the consultant who will be interviewing you, at 366-1921.

Your Participation Is Appreciated

While we appreciate that your participation in the survey puts a demand on your time and organization, we would emphasize that your contribution will have an important impact on the results of this project.

(SIC 642)

PARTICIPANT INFORMATION

COMPANY NAME: _____
UNION NAME (If appropriate): _____
AFFILIATED ORGANIZATIONS: _____
MAIN ADDRESS: _____
TELEPHONE NUMBER: ( ) _____

BRIEF DESCRIPTION OF OPERATION IN ONTARIO

Divisions/Branches/Affiliates	Products/Services
_____	_____
_____	_____
_____	_____
_____	_____

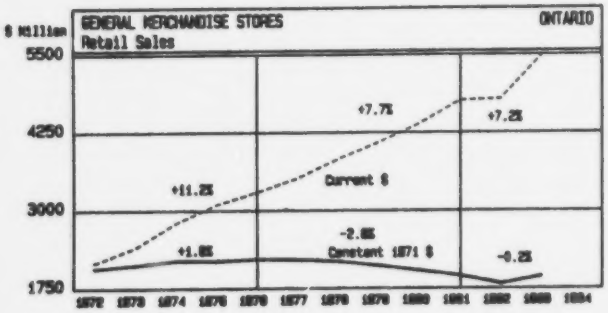
SURVEY PARTICIPANTS

Names	Position	Number of Years With Company	Number of Years With Industry	Check (✓) Sections Answered II	III	IV	V	VI	VII
_____ (principal respondent)	_____	_____	_____	☐	☐	☐	☐	☐	☐
_____ (other respondents)	_____	_____	_____	☐	☐	☐	☐	☐	☐
_____	_____	_____	_____	☐	☐	☐	☐	☐	☐
_____	_____	_____	_____	☐	☐	☐	☐	☐	☐
_____	_____	_____	_____	☐	☐	☐	☐	☐	☐

(SIC 642)

CHART 1

INDUSTRY-WIDE MANUFACTURING SHIPMENTS IN ONTARIO*



* Source: Statistics Canada, Retail Trade, Cat. No. 63-005. Includes department stores, general merchandise stores, general stores and variety stores. Sales are deflated by the Consumer Price Index, Goods Index, for Canada, (Index 1971 = 100).

(SIC 642)

1. INDUSTRY-WIDE SALES VOLUMES IN ONTARIO

Chart 1, opposite, illustrates General Merchandising sales in ONTARIO in current dollars (dotted line) and in constant dollars (current dollars adjusted for price changes-solid line).

The rates shown for the first three time periods listed below are expressed in annual compound rates of change (in constant dollars).

Using these rates as a guide, please estimate the annual compound rates of change (in constant dollars) of your industry's sales in Ontario for the next four periods listed.

Sales Volume in Ontario	Annual Compound Rate of Change (in constant dollars)
1972 to 1976	+1.8 %
1976 to 1981	-2.6 %
1981 to 1983	-0.2 %
	Your Estimates (Indicate if + or -)
1983 to 1984?	___ %
1984 to 1985?	___ %
1985 to 1990?	___ %
1991 to 1995?	___ %

(SIC 642)

2. INDUSTRY-WIDE OUTLOOK - EMPLOYMENT IN ONTARIO

The table below indicates total employment and annual compound rates of change for employment in the General Merchandising Industry in ONTARIO between 1971 and 1982. (Statistics Canada, Employment, Earnings & Hours, Cat. No. 72-002).

Would you please indicate your estimates for the four following periods listed below (i.e., 1983-1995). Provide your estimates in actual numbers or in annual compound rates of change, whichever is easier.

For your information, total employment covers full-time, part-time, temporary, casual and contract - i.e., total "head count".

Total Employment in Ontario		Annual Compound Rates of Change	
1972	90,300		
1981	106,600	1972-1981	+1.9 %
1983	94,300	1981-1983	-5.9 %

Your Estimates:

				(Indicate if + or -)
1984?	_____	OR	1983-1984?	___ %
1985?	_____	OR	1984-1985?	___ %
1990?	_____	OR	1985-1990?	___ %
1995?	_____	OR	1990-1995?	___ %

(SIC 642)

3. FIRM'S ADOPTION OF TECHNOLOGIES

The following questions refer to new technologies your firm has already or may adopt over the next ten years in ONTARIO.

3a. Please indicate the technologies that have already been adopted by your firm. Record your answer on Chart 3, opposite, under column 3a.

3b. Please indicate the technologies that will probably be adopted by your firm between 1985 and 1990. Record your answer on Chart 3, under column 3b. It may be appropriate to check more than one time period.

3c. Please indicate the technologies that will probably be adopted by your firm between 1991 and 1995. Record your answer on Chart 3, under column 3c. It may be appropriate to check more than one time period.

(SIC 642)

CHART 3

TECHNOLOGIES ADOPTED OR TO BE ADOPTED BY THE FIRM

	3a ADOPTED IN 1984 OR BEFORE	3b WILL BE ADOPTED BETWEEN 1985-1990?	3c WILL BE ADOPTED BETWEEN 1991-1995?
1. POINT OF SALES			
Electronic Cash Registers	☐	☐	☐
Point of Sale Scanners (Ticket Activated)	☐	☐	☐
Optical Scanners (Universal Product Code)	☐	☐	☐
Credit Card Verification	☐	☐	☐
Computerized Direct Mail Billing	☐	☐	☐
T.V. Shopping (From Home)	☐	☐	☐
Any Others? _____	☐	☐	☐
_____			
2. TECHNOLOGIES WITHIN THE STORE			
Computerized Sales Aids	☐	☐	☐
Computerized Inventory Control	☐	☐	☐
Computerized Ordering Systems	☐	☐	☐
Computercontrolled Roll-Away Systems	☐	☐	☐
Any Others? _____	☐	☐	☐
_____			
3. OFFICE TECHNOLOGY			
Mainframe/Micro-computers	☐	☐	☐
Word Processing	☐	☐	☐
Electronic Filing	☐	☐	☐
Internal Data Base Management Systems	☐	☐	☐
Local Area Networks (LANs)	☐	☐	☐
Integrated Works Stations	☐	☐	☐
Any Others? _____	☐	☐	☐
_____			
4. WAREHOUSING TECHNOLOGY			
Automated Warehousing	☐	☐	☐
Automated Transfer & Set-Up	☐	☐	☐
Any Others? _____	☐	☐	☐
_____			
5. TELECOMMUNICATIONS TECHNOLOGIES			
Private Automatic Branch Exchange (PABX)	☐	☐	☐
Electronic Mail	☐	☐	☐
Voice Mail	☐	☐	☐
Facsimile with Installed Microprocessor (FAX)	☐	☐	☐
Satellite/Microwave Systems	☐	☐	☐
Video Conferencing	☐	☐	☐
Any Others? _____	☐	☐	☐
_____			
6. OTHER TECHNOLOGIES			
ATM (Automatic Teller Machines)	☐	☐	☐
Electronic Funds Transfer	☐	☐	☐
"Smart" Cards (with Installed Microprocessors)	☐	☐	☐
Any Others? _____	☐	☐	☐
_____			
HAVE/WILL NOT ADOPT ANY NEW TECHNOLOGIES IN THIS PERIOD	☐	☐	☐

(SIC 642)

4. FORCES DRIVING THE FIRM'S NEED FOR NEW TECHNOLOGIES OVER THE NEXT 10 YEARS

4a. What is the **single most important driving factor** in your firm's internal or external environment which could accelerate your firm's need to adopt these new technologies over the next 10 years in ONTARIO?

4b. What is the **second most important factor** likely to accelerate your firm's need to adopt these new technologies?

4c. And what is the **third most important factor**?

5. FACTORS AFFECTING THE FIRM'S RATE OF TECHNOLOGY ADOPTION OVER THE NEXT 10 YEARS

5a. What is the **single most important factor** in your firm's internal or external environment that could slow down the speed at which your firm will adopt these new technologies over the next 10 years in ONTARIO?

5b. What is the **second most important factor** that could slow down your firm's adoption of these new technologies?

5c. And what is the **third most important factor**?

6. IMPACT OF TECHNOLOGY ON OCCUPATIONS OVER THE NEXT 10 YEARS

The following questions attempt to determine impacts on specific occupations you expect to be caused by the adoption of new technologies in your firm over the next 10 years in ONTARIO.

6a. Please indicate the occupations in which your firm is likely to have an oversupply of people over the next 10 years as a result of the adoption of these new technologies. Record your answer on Chart 6, opposite, under column 6A.

6b. Please indicate the occupations in which you expect your firm will have a shortage of the skills required to cope with these new technologies. Record your answer on Chart 6, under column 6B.

(SIC 642)

CHART 6
IMPACT OF TECHNOLOGIES ON SELECTED OCCUPATIONS
IN YOUR FIRM OVER THE NEXT 10 YEARS

	6a OCCUPATIONS WITH AN OVERSUPPLY OF SKILLS	6b OCCUPATIONS WITH A SHORTAGE OF THE REQUIRED SKILLS
MANAGERIAL, ADMINISTRATIVE & RELATED	☐	☐
NATURAL SCIENCE, ENGINEERING & MATHEMATICS		
• Systems Analysts	☐	☐
CLERICAL		
• Secretaries	☐	☐
• Typist/Clerk Typist (includes Word Processing Operators)	☐	☐
• Bookkeepers & Accounting Clerks	☐	☐
• Cashiers & Tellers	☐	☐
• EDP Equipment Operators	☐	☐
• Shipping Clerks	☐	☐
• Stock Clerks	☐	☐
• General Office Clerks	☐	☐
• All Other Clerks (includes Receptionists, Information Clerks, Telephone Operators and all others not listed above)	☐	☐
SALES		
• Supervisor: Sales (e.g., Department Manager, Store Manager)	☐	☐
• Salespersons/Sales Clerk (e.g., Sales Clerk, Store Clerk, Floor Salesperson, Counter Salesperson).	☐	☐
• Buyers: Wholesale/Retail	☐	☐
ANY OTHER OCCUPATIONS SIGNIFICANTLY AFFECTED? WHICH ONES?		
_____	☐	☐
_____	☐	☐
_____	☐	☐

(SIC 642)

7. ACTIONS TO DEAL WITH OVERSUPPLY OF SKILLS IN FIRM OVER NEXT 10 YEARS

The following questions relate to the actions your firm will likely take to deal with the oversupply of people in your firm resulting from the adoption of these new technologies in ONTARIO.

7a. For each occupation with a potential oversupply of skills (as you indicated in Q.6a), please identify the steps your firm will likely take that will affect the largest number of people in that occupation. Record your answers on Chart 7, opposite, under column 7a.

In answering this and the following question, please consider the possible actions listed below as well as any other possible action not in the list but that your firm is likely to take.

Possible Actions

- Attrition
- Early Retirement
- Layoffs
- Relocation (geographic)
- Shorter hours/work week
- Job sharing
- Change from full-time to part-time
- Retraining
- Lateral transfer
- Upgrading
- Downgrading
- Etc. etc.,

7b. Again, for each of these occupations, identify the step your firm may take that will affect the second largest number of people in that occupation. Record on Chart 7, under column 7b.

(SIC 642)

CHART 7

* STEPS FIRM WILL LIKELY TAKE
TO DEAL WITH OVERSUPPLY OF SKILLS OVER NEXT 10 YEARS

OCCUPATIONS	7a STEPS THAT WILL AFFECT THE LARGEST NUMBER OF PEOPLE IN THIS OCCUPATION	7b STEPS THAT WILL AFFECT THE 2ND LARGEST NUMBER OF PEOPLE IN THIS OCCUPATION
MANAGERIAL, ADMINISTRATIVE & RELATED		
NATURAL SCIENCE, ENGINEERING & MATHEMATICS		
• Systems Analysts		
CLERICAL		
• Secretaries		
• Typist/Clerk Typist (includes Word Processing Operators)		
• Bookkeepers & Accounting Clerks		
• Cashiers & Tellers		
• EDP Equipment Operators		
• Shipping Clerks		
• Stock Clerks		
• General Office Clerks		
• All Other Clerks (includes Receptionist, Information Clerks, Telephone Operators and all others not listed above)		
SALES		
• Supervisor: Sales (e.g., Department Manager, Store Manager)		
• Salespersons/Sales Clerk (e.g., Sales Clerk, Store Clerk, Floor Salesperson, Counter Salesperson)		
• Buyers: Wholesale/Retail		
ANY OTHER OCCUPATIONS SIGNIFICANTLY AFFECTED? WHICH ONES?		
_____		
_____		
_____		

(SIC 642)

8. STEPS TO ACQUIRE THE NEW SKILL REQUIREMENTS OVER THE NEXT 10 YEARS

The following questions are intended to identify the most likely steps your firm may take to acquire the new skill requirements associated with the new technologies over the next 10 years in ONTARIO.

8a. Please indicate, for each occupation with a potential shortage of the new skill requirements (as you indicated in Q6b), the step your firm will likely take that will affect the largest number of people in that occupation. Record your answers on Chart 8, column 8a.

Please consider the possible actions listed below as well as any other action (not listed) that your firm is likely to take.

Likely Steps

- Retraining
- Relocation
- Upgrading
- Increased overtime of firm's skilled people
- Recruiting full-time skilled people
- Recruiting part-time skilled people
- Contracting work out
- Etc., etc...

8b. Please indicate, for each occupation, the step your firm may take that will affect the second largest number of people in that occupation. Record your answers in column 8b.

CHART 8

STEPS FIRM WILL TAKE
OVER NEXT 10 YEARS TO ACQUIRE THE NEW SKILL REQUIREMENTS

OCCUPATIONS	8a STEP WHICH WILL AFFECT THE LARGEST NUMBER OF PEOPLE IN THIS OCCUPATION	8b STEP WHICH WILL AFFECT THE 2ND LARGEST NUMBER OF PEOPLE IN THIS OCCUPATION
MANAGERIAL, ADMINISTRATIVE & RELATED		
NATURAL SCIENCE, ENGINEERING & MATHEMATICS		
• Systems Analysts		
CLERICAL		
• Secretaries		
• Typist/Clerk Typist (includes Word Processing Operators)		
• Bookkeepers & Accounting Clerks		
• Cashiers & Tellers		
• EDP Equipment Operators		
• Shipping Clerks		
• Stock Clerks		
• General Office Clerks		
• All Other Clerks (includes Receptionists, Information Clerks, Telephone Operators and all others not listed above)		
SALES		
• Supervisor: Sales (e.g., Department Manager, Store Manager)		
• Salespersons/Sales Clerk (e.g., Sales Clerk, Store Clerk, Floor Salesperson, Counter Salesperson)		
• Buyers: Wholesale/Retail		
ANY OTHER OCCUPATIONS SIGNIFICANTLY AFFECTED? WHICH ONES?		
_____		
_____		
_____		

9. NATURE OF IMPACT ON SKILLS AND JOB CONTENT OVER THE NEXT TEN YEARS

The following questions are meant to identify the nature of the impact on selected occupations in ONTARIO.

9a. For selected occupations in your firm, please indicate how the new technologies will affect each in their daily work. That is, will their daily work require greater skill (+), less skill (-), or about the same skill (0) as they currently require. Record your answers on Chart 9, opposite, under Column 9a.

9b. Please indicate whether the new skills they require will demand more time (+), less time (-), or about the same time (0) to achieve the proficiency that they will need. Record your answers on Chart 9, column 9b.

9c. Please indicate whether, in using these new technologies, these occupations will require more knowledge (+) of the company's operations, less knowledge (-), or about the same (0) amount of knowledge as is currently required to perform their daily tasks. Record your answers on Chart 9, under 9c.

(SIC 642)

CHART 9

IMPACT OF TECHNOLOGY ON SKILL LEVELS AND JOB CONTENT

	9a SKILLS REQUIRED (+, -, 0)	9b TIME TO ACHIEVE PROFICIENCY (+, -, 0)	9c KNOWLEDGE OF COMPANY'S OPERATIONS (+, -, 0)	COMMENTS
MANAGERIAL, ADMINISTRATIVE, & RELATED				
NATURAL SCIENCE, ENGINEERING & MATHEMATICS				
• Systems Analysts				
CLERICAL				
• Secretaries				
• Typist/Clerk Typist (includes Word Processing Operators)				
• Bookkeepers & Accounting Clerks				
• Cashiers & Tellers				
• EDP Equipment Operators				
• Shipping Clerks				
• Stock Clerks				
• General Office Clerks				
• All Other Clerks (includes Receptionists, Information Clerks, Telephone Operators and all others not listed above)				
SALES				
• Supervisor: Sales (e.g., Department Manager, Store Manager)				
• Salespersons/Sales Clerk (e.g., Sales Clerk, Store Clerk Floor Salesperson, Counter Salesperson)				
• Buyers: Wholesale/Retail				
ANY OTHER OCCUPATIONS SIGNIFICANTLY AFFECTED? WHICH ONES?				
_____				
_____				
_____				

(SIC 642)

10. TRAINING/RETRAINING

These questions are about the current and future importance of training and retraining in your organization.

10a. Please indicate what were your firm's total training costs as a percent of total labour costs in 1981. Record your answer on Chart 10, line 10a.

Training costs include the costs of internally or externally provided training programs, classroom and on-the-job workshops, vouchers or tuition credits, provided by your firm, which are intended to train employees to perform their jobs or to retrain employees to assume new or alternate jobs. Labour costs include all wages, salaries and benefits. (e.g., $\frac{\text{Total Training Costs}}{\text{Total Labour Costs}} \times 100 = 1.0\%$)

10b. Please indicate what your firm's total training costs as a percent of total labour costs will be in 1984 (to year end). Record your answer on line 10b.

10c. What do you estimate for 1985, (line 10c)?

10d. What do you estimate it will be in 1990, (line 10d)?

10e. What do you estimate it will be in 1995, (line 10e)?

10f. For each year on Chart 10, (line 10a to 10e), please indicate what percent of total training costs in each year have or will go towards training people to adapt to the new technologies.

CHART 10

TRAINING COSTS OF FIRM

			As a Percent of Total Labour Costs	Percent of Total Training Costs Directly Related to New Technologies
10a.	1981?	Actual	___%	___%
10b.	1984?	Estimate	___%	___%
10c.	1985?	Estimate	___%	___%
10d.	1990?	Estimate	___%	___%
10e.	1995?	Estimate	___%	___%

(SIC 642)

11. FIRM'S EMPLOYMENT TRENDS

In this section, we would like to determine how the firm's employment levels in ONTARIO are likely to change over the next 10 years.

11a. To begin, considering all possible factors in your firm's internal and external environment, what is the single most important factor which will have an impact on your firm's level of employment in ONTARIO over the next 10 years? _____

_____

11b. The second most important factor. _____

_____

11c. The third most important factor? _____

_____

11d. Please indicate total employees (includes full-time, temporary, contract, casual, seasonal and part-time employment) in your organization in ONTARIO for 1971, 1981 and 1984 from your employment records. Record your answers on Chart 11, column 11d.

Please estimate future total employment in your organization in ONTARIO for 1985, 1990 and 1995.

11e. Please indicate the percent of your total employment in ONTARIO that are part-time employees (i.e., less than normal full work week), for 1981 and 1984. Record your answers on Chart 11, column 11e.

Also in column 11e, please estimate part-time employees as a percent of total employees in ONTARIO for 1985, 1990 and 1995.

11f. Please translate your total ONTARIO employment (include full-time, part-time, casual, temporary, seasonal) into a full-time equivalent (F.T.E.) figure for your firm for 1981 and 1984 in column 11f.

Also in column 11f, please estimate total employment in terms of a full-time equivalent (F.T.E.) for 1985, 1990 and 1995.

By F.T.E. we mean a normal, full, work week for a normal, full year. F.T.E. can be measured in a variety of ways depending on whatever is normal for your firm or industry. For example, if expressed in hours of work per year one FTE might range from 1750 to 2000 hours of work a year depending on the length of the normal work week (e.g., 35 hours/week x 50 weeks = 1750 hours, 40 hours/week x 50 weeks = 2000 hours.)

CHART 11

FIRM'S EMPLOYMENT TRENDS IN ONTARIO

	11d TOTAL EMPLOYMENT IN ONTARIO	11e PART-TIME EMPLOYEES AS A % OF TOTAL EMPLOYMENT	11f TOTAL EMPLOYMENT IN FULL-TIME EQUIVALENT (F.T.E.)
Actual Figures			
1971?	_____		
1981?	_____	_____ %	_____ FTE
1984?	_____	_____ %	_____ FTE
Your Estimates			
1985?	_____	_____ %	_____ FTE
1990?	_____	_____ %	_____ FTE
1995?	_____	_____ %	_____ FTE

12. CHANGES IN EMPLOYMENT STRUCTURE

This section is intended to measure the changes in the employment structure of your firm in ONTARIO between 1981 and 1995.

12a. Please indicate the actual percentage share of <u>each</u> occupation listed as a percent of your firm's total employment in ONTARIO in 1981. Record your answer on Chart 12, column 12a.

12b. Please indicate the actual percentage share of <u>each</u> selected occupation listed as a percent of your firm's total employment in ONTARIO in 1984. Record your answer in column 12b.

12c. Please estimate the same for each selected occupation in 1985. Record in column 12c.

12d. Please estimate the same for each selected occupation in 1990. Record in column 12d.

12e. Please estimate the same for each selected occupation in 1995. Record in column 12e.

(SIC 642)

CHART 12

TRENDS IN FIRM'S OCCUPATIONAL STRUCTURE BETWEEN 1981 AND 1995

	OCCUPATIONS AS A PERCENT OF TOTAL EMPLOYMENT OF THE FIRM IN ONTARIO					
	12a Actual 1981	12b Actual 1984	12c Estimate 1985	12d Estimate 1990	12e Estimate 1995	
	%	%	%	%	%	
MANAGERIAL, ADMINISTRATIVE, & RELATED	☐	☐	☐	☐	☐	1.
NATURAL SCIENCE, ENGINEERING & MATHEMATICS	☐	☐	☐	☐	☐	2.
• Systems Analysts	___	___	___	___	___	
• All Other Nat. Sci., Eng. & Maths (not listed above)	___	___	___	___	___	
CLERICAL	☐	☐	☐	☐	☐	3.
• Secretaries	___	___	___	___	___	
• Typist/Clerk Typist (includes Word Processing Operators)	___	___	___	___	___	
• Bookkeepers & Accounting Clerks	___	___	___	___	___	
• Cashiers & Tellers	___	___	___	___	___	
• EDP Equipment Operators	___	___	___	___	___	
• Shipping Clerks	___	___	___	___	___	
• Stock Clerks	___	___	___	___	___	
• General Office Clerks	___	___	___	___	___	
• All Other Clerks (includes Receptionists, Information Clerks, Telephone Operators, and all others not listed above)	___	___	___	___	___	
SALES	☐	☐	☐	☐	☐	4.
• Supervisor: Sales	___	___	___	___	___	
• Salesperson/Sales Clerk	___	___	___	___	___	
• Buyers: Wholesale/Retail	___	___	___	___	___	
• All Other Sales (not listed above)	___	___	___	___	___	
ALL OTHER OCCUPATIONS	☐	☐	☐	☐	☐	5.
• FIRM'S TOTAL EMPLOYMENT IN ONTARIO (1+2+3+4+5 = 100%)	100%	100%	100%	100%	100%	

(SIC 642)

13. EMPLOYMENT STRUCTURE BY SEX

The following questions refer to your firm's employment in ONTARIO by sex for each specific occupation listed in Chart 13.

13a. Please provide the percentage split between male and female of your employees in ONTARIO by each occupation in 1981. Record your answer on Chart 13, column 13a.

13b. Please provide the percentage split between male and female employees by occupation in ONTARIO in 1984. Record your answer in Column 13b.

CHART 13

EMPLOYMENT STRUCTURE BY SEX AND OCCUPATION IN ONTARIO

	13a 1981 EMPLOYMENT			13b 1984 EMPLOYMENT		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
MANAGERIAL, ADMINISTRATIVE & RELATED	___% + ___% = 100%			___% + ___% = 100%		
NATURAL SCIENCE, ENGINEERING & MATHEMATICS						
• Systems Analysts	___% + ___% = 100%			___% + ___% = 100%		
CLERICAL						
• Secretaries	___% + ___% = 100%			___% + ___% = 100%		
• Typist/Clerk Typist (Includes Word Processing)	___% + ___% = 100%			___% + ___% = 100%		
• Bookkeepers & Accounting Clerks	___% + ___% = 100%			___% + ___% = 100%		
• Cashiers & Tellers	___% + ___% = 100%			___% + ___% = 100%		
• EDP Equipment Operators	___% + ___% = 100%			___% + ___% = 100%		
• Shipping Clerks	___% + ___% = 100%			___% + ___% = 100%		
• Stock Clerks	___% + ___% = 100%			___% + ___% = 100%		
• General Office Clerks	___% + ___% = 100%			___% + ___% = 100%		
• All Other Clerks (Includes Receptionists, Information Clerks, Telephone Operators and all others not listed above)	___% + ___% = 100%			___% + ___% = 100%		
SALES						
• Supervisor: Sales (e.g. Department Manager, Store Manager)	___% + ___% = 100%			___% + ___% = 100%		
• Salespersons/Sales Clerk (e.g., Sales Clerk, Store Clerk, Floor Salesperson, Counter Salesperson)	___% + ___% = 100%			___% + ___% = 100%		
• Buyers: Wholesale/Retail	___% + ___% = 100%			___% + ___% = 100%		
FIRM'S TOTAL EMPLOYEES IN ONTARIO	___% + ___% = 100%			___% + ___% = 100%		

14. ORGANIZED LABOUR IN YOUR FIRM IN ONTARIO

14a. Does your firm have any workers in ONTARIO covered by a collective labour agreement(s)?

Yes ☐ No ☐ If no, go on to Question 14c.

14b. If yes, what percent of your firm's total employment in ONTARIO is currently (1984) unionized?

_____%

14c. What percent of your firm's total employment in ONTARIO do you estimate will be unionized by 1985, 1990 and by 1995?

- 1985? _____%
- 1990? _____%
- 1995? _____%

14d. If you expect an increase in the percent of total employment that will be unionized, please indicate the specific occupational groups within which you expect the increase will take place.

_____

_____

15. ORGANIZED LABOUR AND TECHNOLOGY CHANGE

If any of the employees in your firm in ONTARIO are represented by a union, please answer the following series of questions. If none of the workers in your firm in ONTARIO are unionized, please go on to Question 16, p. 22.

15a. Please indicate the name of the union(s) in your firm in ONTARIO. Record your answers on Chart 15, on line 15a.

15b. On line 15b, please indicate the number of the firm's employees in ONTARIO in each union.

15c. On line 15c, indicate the worker groups in your firm the union(s) represents.

15d. On line 15d, check ☑ if the contract(s) has a technology change clause(s).

15e. On line 15e, check ☑ if the technology change clause(s) covers any of the following:

- Notice/Disclosure
- Consultation/Participation
- Joint Technology Change Committee
- Job Security
- Seniority
- Other (please specify).

15f. On line 15f, indicate whether the clause(s) is effectively administered. If your answer is "NO", please explain your answer.

CHART 15

ORGANIZED LABOUR IN ONTARIO

	(name of union)	(name of union)	(name of union)
15a. Name of Unions in Firm			
15b. Number of Firm's Employees in Each Union			
15c. Worker Groups Represented by Each Union			
15d. Does Union(s) Contract(s) Have a Technology Change Clause(s)?			
YES	☐	☐	☐
NO	☐	☐	☐
15e. Check ☑ if Technology Change Clause(s) Includes:			
• Notice/Disclosure	☐	☐	☐
• Consultation/Participation	☐	☐	☐
• Joint Technology Change Committee	☐	☐	☐
• Job Security	☐	☐	☐
• Seniority	☐	☐	☐
• Other _____ (specify)	☐	☐	☐
15f. Is the Clause Effectively Administered?			
YES	☐	☐	☐
NO	☐	☐	☐
If 'NO', explain			

(SIC 642)

15g. In general, what has been the union's position on the adoption of new technologies in your firm? Please explain.

(SIC 642)

16. THE NATURE OF WORKER INVOLVEMENT IN THE PROCESS OF TECHNOLOGY ADOPTION

The following questions are on the nature of the relationship between workers and management in your firm as decisions are made on the adoption of new technology.

16a. Does your firm have a formal mechanism for worker participation in any of the following? Please Check ☑ Yes or No

	YES	NO
• Setting production and/or sales targets:		
- at company level?	☐	☐
- at division/plant level?	☐	☐
- at department/area level?	☐	☐
- at working group level?	☐	☐
• Improving productivity/quality?	☐	☐
• Adoption of new technology?	☐	☐

16b. In your opinion, to what extent and how should management involve workers in decisions regarding the adoption of new technologies? Please comment.

_____

_____

_____

_____

_____

_____

(SIC 642)

17. FUTURE CAPITAL INVESTMENTS

17a. Please indicate how much, in today's dollars, your firm plans to spend on construction of structures and buildings in ONTARIO over the period 1985 to 1990 and over the period 1991 to 1995. Record your answer on Chart 17, column 17a.

17b. What percent of this spending can be directly attributed to the adoption of new technologies? Record under column 17b.

17c. Would you indicate how much, in today's dollars, your firm plans to spend on machinery and equipment over the period 1985 to 1990 and over the period 1991 to 1995 in ONTARIO. Record under column 17c.

17d. What percent of this spending on machinery and equipment will be for new technologies? Record under column 17d.

17e. Please indicate what criterion your firm will likely use to justify the financial investment in the new technologies.

Pay-back period ☐ _____ If Yes, how long?

Return on investment ☐ _____ If Yes, what rate?

Other _____ ☐ _____ Please elaborate
(specify)

17f. Considering now your total capital investment in new technology over the next 10 years, what percent will be funded through internal funds and what percent will be funded through external funds?

Internal funds ___%
External funds ___%
100%

CHART 17

CAPITAL INVESTMENT PLANS
IN ONTARIO

	INVESTMENT IN STRUCTURES & BUILDINGS		INVESTMENT IN MACHINERY & EQUIPMENT	
	17a	17b	17c	17d
	IN TODAY'S DOLLARS (In Thousands $)	% DIRECTLY RELATED TO NEW TECHNOLOGY	IN TODAY'S DOLLARS (In Thousands $)	% FOR NEW TECHNOLOGY
1985 to 1990?	$_____	_____%	$_____	_____%
1991 to 1995?	$_____	_____%	$_____	_____%

(SIC 642)

18. PLANNING FOR CHANGES IN TECHNOLOGY

These questions ask about your firm's plans for adopting new technologies in ONTARIO.

18a. Does your firm currently have a long-term strategic plan?

Yes ☐ No ☐

18b. Does your firm have a plan to deal with future human resource needs?

Yes ☐ No ☐ If no, go to Question 18d.

18c. Up to what year has your firm planned for its human resource needs?

_____

(WRITE IN YEAR)

18d. Does your firm have a capital investment plan dealing with the adoption of new technologies?

Yes ☐ No ☐ If no, go to Question 19. on p. 25.

18e. Up to what year has your firm planned for its capital requirements?

_____

(WRITE IN YEAR)

18f. On a scale of 1 to 5, please indicate to what extent these two plans (capital investment and human resource plans) are integrated.

(Please circle answer)

NOT AT ALL INTEGRATED	1	2	3	4	5	HIGHLY INTEGRATED

(SIC 642)

(SIC 642)

19. Please indicate below any other comments on the issue of employment and new technology you wish to make.

_____

_____

_____

_____

_____

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION

APPENDIX B

HISTORICAL TABLES

TABLE B-1

INDUSTRY INDICATORS: FOOD STORES IN ONTARIO
(Current Dollars)

AGGREGATE OUTPUT	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
RETAIL SALES ($Millions)														
Combination Stores (Groceries and Meat)	N.A.	2,484	2,792	3,330	3,872	4,241	4,630	5,201	5,704	6,272	6,923	7,592	8,052	
Grocery, Confectionery and Sundries Stores	N.A.	474	509	588	706	872	874	930	1,045	1,197	1,497	1,636	1,801	
All Other Food Stores	N.A.	324	357	402	408	466	437	480	468	499	570	730	769	
TOTAL FOOD STORES	N.A.	3,282	3,658	4,321	4,985	5,579	5,940	6,611	7,217	7,969	8,990	9,957	10,622	
CAPITAL INVESTMENT														
COMBINATION STORES ($Millions)														
Construction	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	14.2	27.4	21.0	41.2	33.7	26.7p	21.1r
Machinery and Equipment	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	65.0	51.8	62.1	72.0	77.3	68.2p	81.7r
TOTAL	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	79.2	79.2	83.1	113.2	111.0	94.9p	102.8r
EMPLOYMENT														
TOTAL EMPLOYEES (Thousands)	N.A.	69.2	71.9	75.0	76.8	78.3	80.1	85.2	86.2	86.5	89.6	94.3	87.6	

N.A. Not Available; p Preliminary Actual; r Revised Intentions

NOTE: Retail Sales details may not add to totals due to rounding.

SOURCE: Statistics Canada: Retail Trade Historical Statistics, 1972-1979, Cat. No. 63-538; March issues of Retail Trade, Cat. No. 63-005; Public and Private Investment in Canada, Cat. No. 61-205 and 61-206; and Employment Earnings and Hours, Cat. No. 72-002.

TABLE B-2

INDUSTRY INDICATORS: FOOD STORES IN ONTARIO

AVERAGE ANNUAL RATES OF CHANGE
(Percent)

	1972-1976	1976-1981	1972-1981	1981-1983
AGGREGATE OUTPUT				
RETAIL SALES				
Combination Stores (Groceries and Meat)	14.3	10.3	12.1	7.8
Grocery, Confectionery and Sundries Stores	16.4	11.4	13.6	9.7
All Other Food Stores	9.5	4.1	6.5	16.1
TOTAL FOOD STORES	14.2	10.0	11.8	8.7
CAPITAL INVESTMENT				
COMBINATION STORES				
Construction	N.A.	N.A.	N.A.	(19.5)
Machinery and Equipment	N.A.	N.A.	N.A.	(2.7)
TOTAL	N.A.	N.A.	N.A.	(8.4)
EMPLOYMENT				
TOTAL EMPLOYEES	3.1	2.7	2.9	(1.1)

N.A. Not Available
( ) Indicates decline

SOURCE: Calculated from Table B1 using unrounded data for Retail Sales. Calculations by Economics Practice, Currie, Coopers & Lybrand.

TABLE B-3

INDUSTRY INDICATORS: FOOD STORES IN ONTARIO
(Constant 1971 Dollars)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
AGGREGATE OUTPUT														
RETAIL SALES ($Millions)														
Combination Stores (Groceries and Meat)	N.A.	2,306	2,244	2,311	2,369	2,574	2,579	2,523	2,451	2,425	2,397	2,449	2,448	
Grocery, Confectionery and Sundries Stores	N.A.	440	409	409	432	529	487	451	449	463	518	528	556	
All Other Food Stores	N.A.	301	287	279	250	283	243	233	201	193	197	235	238	
TOTAL FOOD STORES	N.A.	3,048	2,940	2,998	3,051	3,385	3,309	3,208	3,101	3,082	3,113	3,212	3,282	
CAPITAL INVESTMENT														
COMBINATION STORES ($Millions)														
Construction	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	7.9	13.8	9.5	16.6	12.4	9.4	7.2
Machinery and Equipment	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	36.4	26.3	28.6	29.7	29.6	25.3	28.8
TOTAL	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	44.3	40.1	38.1	46.3	42.0	34.7	36.0
EMPLOYMENT														
TOTAL EMPLOYEES (Thousands)	N.A.	69.2	71.9	75.0	76.8	78.3	80.1	85.2	86.2	86.5	89.6	94.3	87.6	

N.A. Not Available

NOTE: Retail Sales details may not add to totals due to rounding. Sales are deflated by the Consumer Price Index, Food Purchased from Stores, for Toronto, (Index 1971 = 100). Capital Investment data is deflated by the Implicit Price Indexes for Business, Non-Residential Construction, and Machinery and Equipment.

SOURCE: Publications as outlined on Table B1. Also, Statistics Canada, Consumer Prices and Price Indexes, Cat. No. 62-010; and National Income and Expenditure Accounts, Cat. No. 13-201.

TABLE B-4

INDUSTRY INDICATORS: FOOD STORES IN ONTARIO

AVERAGE ANNUAL RATES OF CHANGE
(Percent)

	1972-1976	1976-1981	1972-1981	1981-1983
AGGREGATE OUTPUT				
RETAIL SALES				
Combination Stores (Groceries and Meat)	2.8	(1.4)	0.4	1.9
Grocery, Confectionery and Sundries Stores	4.7	(0.4)	1.8	3.6
All Other Food Stores	(1.6)	(6.9)	(4.6)	9.7
TOTAL FOOD STORES	2.7	(1.7)	0.2	2.7
CAPITAL INVESTMENT				
COMBINATION STORES				
Construction	N.A.	N.A.	N.A.	(24.7)
Machinery and Equipment	N.A.	N.A.	N.A.	(7.7)
TOTAL	N.A.	N.A.	N.A.	(13.4)
EMPLOYMENT				
TOTAL EMPLOYEES	3.1	2.7	2.9	(1.1)

N.A. Not Available
( ) Indicates decline

SOURCE: Calculated from Table 33 using unrounded data for Retail Sales. Calculations by Economics Practice, Currie, Coopers & Lybrand.

TABLE B-5

OCCUPATIONAL INDICATORS: FOOD STORES IN ONTARIO

RANKING BY RELATIVE STRENGTH

	NUMBER OF EMPLOYEES 1981	AVERAGE ANNUAL GROWTH RATE (PERCENT) 1971 - 1981
I. TOTAL FOOD STORES	92,385	2.9
II. TWO DIGIT LEVEL		
MANAGEMENT AND ADMINISTRATION	1,660	9.7
NATURAL SCIENCES, ENGINEERING	190	9.0
CLERICAL	35,430	5.9
SALES	31,540	0.9
III. FOUR DIGIT LEVEL		
CLERICAL		
Shipping Clerks	1,030	3.0
Bookkeepers	2,165	4.9
Cashiers & Tellers	23,670	5.4
Stock Clerks	5,295	11.2
TOTAL	35,430	5.9
SALES		
Supervisor: Sales Commission	14,580	0.8
Salespersons: Commission*	15,965	1.2
TOTAL	31,540	0.9
MANAGEMENT AND ADMINISTRATION	1,660	9.7
NATURAL SCIENCES, ENGINEERING AND MATHEMATICS	190	9.0

* Salesmen and Salespersons in 1971 have been adjusted to include Sales Clerks. The annualized growth rate has been recalculated accordingly.

SOURCE: Census Data, Ontario Ministry of Labour.

TABLE B-6

OCCUPATIONAL INDICATORS: FOOD STORES IN ONTARIO

RANKING BY INCREASE IN FEMALE REPRESENTATION

	FEMALE REPRESENTATION (Percent of Total) 1971	1981	INCREASE IN FEMALE REPRESENTATION (Number of New Jobs) 1971-1981	RELATIVE STRENGTH OF OCCUPATION
TOTAL FOOD STORES	44.2	52.2	17,498	
SALES				
Supervisors: Sales Occupations	18.7	28.0	1,555	Stable.
Salespersons*	55.5	65.3	2,586	Rising.
TOTAL	36.3	46.7	11,880	
CLERICAL				
Shipping Clerks	2.6	7.3	55	Declining.
Stock Clerks	9.0	7.5	230	Rising.
Bookkeepers	82.9	84.5	715	Declining.
Cashiers & Tellers	96.0	95.3	9,150	Stable.
TOTAL	80.5	76.2	10,935	
MANAGEMENT AND ADMINISTRATION	11.4	24.4	330	
NATURAL SCIENCES, ENGINEERING AND MATHEMATICS	12.5	26.3	20	

* Salesmen and Salespersons in 1971 have been adjusted to include Sales Clerks. The annualized growth rate has been recalculated accordingly.

SOURCE: Census data, Ontario Ministry of Labour.

TABLE B-7

INDUSTRIAL RELATIONS: FOOD STORES IN ONTARIO

UNION	NUMBER OF MEMBERS	MAJOR EMPLOYER*	LOCATION	TECHNOLOGICAL CHANGE CLAUSES
OOD AND COMMERCIAL WORKERS				
	6,160	Loblaws Ltd.	Intercity	Consultation, income protection.
	795		Intercity	Consultation, training, arbitration.
	525		Province-wide	None.
	450		Province-wide	None.
	400		Province-wide	None.
	600	Zehrs	Intercity	None.
	3,500	Great A&P of Canada	Province-wide	None.
	1,842		Province-wide	Transfer arrangements. Advance notice, consultation, other.
	5,127	Steinberg Inc.	Intercity	Advance notice, consultation, attrition, other.
	783		Intercity	None.
	600	Valdi Inc.	Province-wide	None.
	620	Canada Safeway	Intercity	None.
	484		Thunder Bay	None.
	436		Intercity	None.
	692	Gordon's Markets	Intercity	Advance notice, training.
	345	Dominion Stores	Intercity	Income protection, transfer arrangements.
	260	Hiway Market	Wellington & Waterloo	None.
ETAIL WHOLESALE WORKERS				
	10,000	Dominion Stores	Intercity	Advance notice, consultation, transfer arrangements.
	637		Toronto	Advance notice, consultation.
	444		Northern Ontario	Advance notice, consultation.
	324		Intercity	Advance notice, consultation, transfer arrangements.
NITED STEELWORKERS				
	650	Dominion Stores	Amherst & Windsor	Advance notice, consultation, transfer agreements, advance notice of layoff.
	250		Sarnia	Advance notice, consultation, transfer arrangements.
EAMSTERS				
	300	Steinberg Inc.	Rexdale & Weston	None.
NDEPENDENT LOCAL				
	232	N & D Supermarket	Windsor	None.

Agreements covering more than 200 employees and in total represent 86 percent of union membership.

OURCE: Collective Bargaining Agreement Systems, Ontario Ministry of Labour.

TABLE B-8

INDUSTRY INDICATORS: GENERAL MERCHANDISE STORES IN ONTARIO
(Current Dollars)

AGGREGATE OUTPUT	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
RETAIL SALES ($Millions)														
Department Stores	N.A.	1,454	1,650	1,924	2,165	2,398	2,583	2,845	3,085	3,308	3,597	3,633	3,969	
General Merchandise Stores	N.A.	349	381	479	487	450	491	530	534	592	633	719	962	
General Stores	N.A.	107	118	126	151	136	147	165	173	176	197	191	190	
Variety Stores	N.A.	248	259	274	295	312	300	288	305	319	339	336	355	
TOTAL GENERAL MERCHANDISE STORES	N.A.	2,158	2,408	2,803	3,099	3,296	3,522	3,828	4,098	4,396	4,767	4,878	5,477	
CAPITAL INVESTMENT														
DEPARTMENT STORES ($Millions)														
Construction	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	9.2	16.4	22.2	24.2	28.9	15.1	14.2
Machinery and Equipment	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	30.9	37.6	44.5	57.6	55.4	62.9	69.7
TOTAL	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	40.1	54.0	66.7	81.8	84.3	78.0	83.9
EMPLOYMENT														
TOTAL EMPLOYEES (Thousands) Total Employees	N.A.	90.3	97.1	103.3	101.3	101.4	99.5	104.7	106.4	108.0	106.6	98.6	94.3	

N.A. Not Available; p Preliminary Actual; r Revised intentions

NOTE: Retail Sales details may not add to totals due to rounding.

SOURCE: Statistics Canada: Retail Trade Historical Statistics, 1972-1979, Cat. No. 63-538; March issues of Retail Trade, Cat. No. 63-005; Public and Private Investment in Canada, Cat. No. 61-205 and 61-206; and Employment Earnings and Hours, Cat. No. 72-002.

TABLE B-9

INDUSTRY INDICATORS: GENERAL MERCHANDISE STORES IN ONTARIO

AVERAGE ANNUAL RATES OF CHANGE
(Percent)

	1972-1976	1976-1981	1972-1981	1981-1983
AGGREGATE OUTPUT				
RETAIL SALES				
Department Stores	13.3	8.5	10.6	5.0
General Merchandise Stores	6.6	7.1	6.8	23.3
General Stores	6.2	7.7	7.1	(1.7)
Variety Stores	5.9	1.7	3.5	2.4
TOTAL GENERAL MERCHANDISE STORES	11.2	7.7	9.2	7.2
CAPITAL INVESTMENT				
DEPARTMENT STORES				
Construction	N.A.	N.A.	N.A.	(21.0)
Machinery and Equipment	N.A.	N.A.	N.A.	4.5
TOTAL	N.A.	N.A.	N.A.	(2.4)
EMPLOYMENT				
TOTAL EMPLOYEES	2.9	1.0	1.9	(5.9)

N.A. Not Available
( ) Indicates decline

SOURCE: Calculated from Table B8 using unrounded data for Retail Sales.

TABLE B-10

INDUSTRY INDICATORS: GENERAL MERCHANDISE STORES IN ONTARIO
(Constant 1971 Dollars)

AGGREGATE OUTPUT	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
RETAIL SALES ($Millions)														
Department Stores	N.A.	1,390	1,451	1,502	1,525	1,609	1,615	1,615	1,583	1,523	1,464	1,351	1,401	
General Merchandise Stores	N.A.	334	335	374	343	302	307	301	274	273	258	267	340	
General Stores	N.A.	102	104	99	106	91	92	94	89	81	80	71	67	
Variety Stores	N.A.	237	228	214	208	209	188	163	156	147	138	125	125	
TOTAL GENERAL MERCHANDISE STORES	N.A.	2,063	2,118	2,188	2,182	2,212	2,201	2,173	2,103	2,024	1,940	1,815	1,933	
CAPITAL INVESTMENT														
DEPARTMENT STORES ($Millions)														
Construction	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	5.1	8.3	10.0	9.8	10.6	5.3p	4.8r
Machinery and Equipment	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	17.3	19.1	20.5	23.8	21.2	23.3p	24.6r
TOTAL	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	22.4	27.4	30.5	33.6	31.8	28.6p	29.4r
EMPLOYMENT														
TOTAL EMPLOYEES (Thousands)														
Total Employees	N.A.	90.3	97.1	103.3	101.3	101.4	99.5	104.7	106.4	108.0	106.6	98.6	94.3	

N.A. Not Available; p Preliminary Actual; r Revised intentions

NOTE: Retail Sales details may not add to totals due to rounding.

SOURCE: Publications as outlined in Table B8. Also, Statistics Canada, Consumer Prices and Price Indexes, Cat. 62-010 and National Income and Expenditure Accounts, Cat. No. 13-201.

TABLE B-11

INDUSTRY INDICATORS: GENERAL MERCHANDISE STORES IN ONTARIO

AVERAGE ANNUAL RATES OF CHANGE
(Percent)

	1972-1976	1976-1981	1972-1981	1981-1983
AGGREGATE OUTPUT				
RETAIL SALES				
Department Stores	3.7	(1.9)	0.6	(2.2)
General Merchandise Stores	(2.5)	(3.1)	(2.8)	14.8
General Stores	(2.7)	(2.5)	(2.6)	(8.5)
Variety Stores	(1.8)	(8.0)	(5.8)	(4.7)
TOTAL GENERAL MERCHANDISE STORES	1.8	(2.6)	(0.7)	(0.2)
CAPITAL INVESTMENT				
Construction	N.A.	N.A.	N.A.	(26.5)
Machinery and Equipment	N.A.	N.A.	N.A.	(1.1)
TOTAL	N.A.	N.A.	N.A.	(7.7)
EMPLOYMENT				
TOTAL EMPLOYEES	2.9	1.0	1.9	(5.9)

N.A. Not Available
( ) Indicates decline

SOURCE: Calculated from Table B10 using unrounded data for Retail Sales.
Calculations by Economics Practice, Currie, Coopers & Lybrand.

TABLE B-12

OCCUPATIONAL INDICATORS: GENERAL MERCHANDISE STORES

RANKING BY RELATIVE STRENGTH

		NUMBER OF EMPLOYEES 1981	AVERAGE ANNUAL GROWTH RATE PERCENT 1971 - 1981
I.	TOTAL GENERAL MERCHANDISE STORES	103,160	2.2
II.	TWO DIGIT LEVEL		
	MANAGEMENT AND ADMINISTRATION	3,305	7.4
	NATURAL SCIENCES, ENGINEERING & MATHS.	720	9.0
	CLERICAL	30,565	2.9
	SALES	52,715	1.9
III.	FOUR DIGIT LEVEL		
	SALES		
	Supervisors: Sales	11,420	0.7
	Sales Occupations	1,010	1.5
	Buyers: Wholesale, Retail	1,150	1.6
	Salespersons*	38,695	2.2
	TOTAL	52,715	1.9
	CLERICAL		
	General Office Clerks	1,920	1.0
	Other Clerical: NEC	1,580	1.9
	Secretaries & Stenographers	1,210	1.9
	Bookkeepers	3,965	3.2
	Stock Clerks	3,810	4.3
	Cashiers & Tellers	8,320	4.4
	Shipping Clerks	2,325	6.3
	TOTAL	30,565	2.9
	MANAGEMENT AND ADMINISTRATION		
	Sales Management	1,395	25.0
	TOTAL	3,305	7.4
	NATURAL SCIENCES, ENGINEERING AND MATHEMATICS	720	9.0

* Salesmen and Salespersons in 1971 have been adjusted to include Sales Clerks. The average annual growth rate has been recalculated accordingly.

SOURCE: Census Data, Ontario Ministry of Labour.

TABLE B-13

OCCUPATIONAL INDICATORS: GENERAL MERCHANDISE STORES

RANKING BY INCREASE IN FEMALE REPRESENTATION

	FEMALE REPRESENTATION (Percent of Total) 1971	1981	INCREASE IN FEMALE REPRESENTATION (Number of New Jobs) 1971-1981	RELATIVE STRENGTH OF OCCUPATION
TOTAL GENERAL MERCHANDISE STORES	70.1	71.0	15,131	
SALES				
Sales Occupations Com.	93.1	91.6	115	Declining
Buyers: Wholesale, Retail	40.1	48.3	160	Declining
Supervisors: Sales	37.5	45.7	1,230	Declining
Salespersons *	83.3	83.4	6,439	Rising
TOTAL	71.2	74.4	8,024	
CLERICAL				
General Officer Clerks	93.9	93.8	170	Declining
Secretaries & Stenographers	100.0	99.6	205	Declining
Other Clerical: NEC	90.8	94.3	300	Declining
Shipping Clerks	35.2	34.8	365	Rising
Stock Clerks	49.6	44.8	460	Rising
Bookkeepers	89.8	93.4	1,100	Stable
Cashiers & Tellers	95.9	95.6	2,755	Rising
TOTAL	83.2	81.5	5,720	
MANAGEMENT & ADMINISTRATION				
Sales Management Occupations	20.0	40.1	530	Rising
TOTAL	40.2	40.8	695	
NATURAL SCIENCES, ENGINEERING & MATHEMATICS	13.1	34.0	200	

* Salesmen and Salespersons in 1971 have been adjusted to include sales clerks. The percent change and number of new jobs have been adjusted accordingly.

SOURCE: Census Data, Ontario Ministry of Labour.

TABLE B-14

INDUSTRIAL RELATIONS: GENERAL MERCHANDISE STORES

UNION	NUMBER OF MEMBERS	MAJOR EMPLOYER	LOCATION	TECHNOLOGICAL CHANGE CLAUSES
FOOD AND COMMERCIAL WORKERS	438	Steinberg	Central & Western Ontario	Advance Notice, Consultation, other
	25	Hudson's Bay	Marathon	N.A.
	23	Oxford Warehousing	Mississauga	N.A.
	23	Marks & Spencers	Hearst	N.A.
	5	Marks & Spencers	Hearst	N.A.
RETAIL WHOLESALE DEPARTMENT STORE EMPLOYEES	70	Sentry Department Stores	Windsor	N.A.
	22	Freed Storage	Windsor	N.A.
	21	Marks & Spencers	Windsor	N.A.
	9	Freidman's Department Store	Sault Ste. Marie	N.A.
CANADIAN OPERATING ENGINEERS	7	Simpsons Limited	Toronto	N.A.
INTERNATIONAL OPERATING ENGINEERS	5	Simpsons Sears Limited	Toronto & Etobicoke	N.A.
	1	T. Eaton Co.	Toronto	N.A.

N.A. - Not Available

SOURCE: Collective Bargaining Agreement Systems, Ontario Ministry of Labour

FINAL REPORT AND APPENDICES OF THE ONTARIO TASK FORCE ON EMPLOYMENT AND NEW TECHNOLOGY

Final Report — Employment and New Technology

Appendices:

1. Labour Market Trends in Ontario, 1950-1980
2. Occupational Employment Trends in Ontario, 1971-1981
3. Emerging New Technology, 1985-95: Framework for a Survey of Firms
4. Employment and New Technology in Ontario's Manufacturing Sector: A Summary of Selected Industries
5. Employment and New Technology in the Iron and Steel Industry
6. Employment and New Technology in the Metal Fabricating Industry
7. Employment and New Technology in the Machinery and Equipment Industry
8. Employment and New Technology in the Aircraft and Aircraft Parts Industry
9. Employment and New Technology in the Communications Equipment Industry
10. Employment and New Technology in the Office, Store and Business Machine Industry
11. Employment and New Technology in the Plastic Processing Industry
12. Employment and New Technology in Ontario's Service Sector: A Summary of Selected Industries
13. Employment and New Technology in the Chartered Banks and Trust Industry
14. Employment and New Technology in the Insurance Industry
15. Employment and New Technology in the Government Services Industry
16. Employment and New Technology in the Telecommunications Industry
17. Employment and New Technology in the Retail Trade Industry
18. Employment and New Technology in the Computer Services and Management Consulting Industry
19. Industry-Sector and Occupational Employment in Ontario, 1985-1995
20. Technological Change, Productivity, and Employment: Studies of the Overall Economy